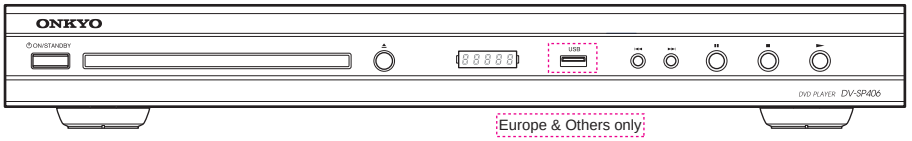
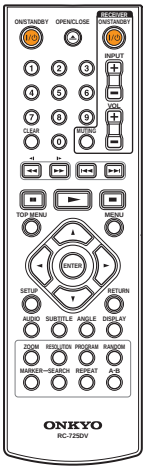
Ref. No. 4063
062008

ONKYO SERVICE MANUAL

DVD PLAYER
MODEL DV-SP406



Europe & Others only



RC-725DV

Black and Silver models

BTDD, STDD	120V AC, 60Hz
BTPP, STPP	220-240V AC, 50/60Hz
BTUA, STUA	110-240V AC, 50/60Hz

SAFETY-RELATED COMPONENT WARNING!!

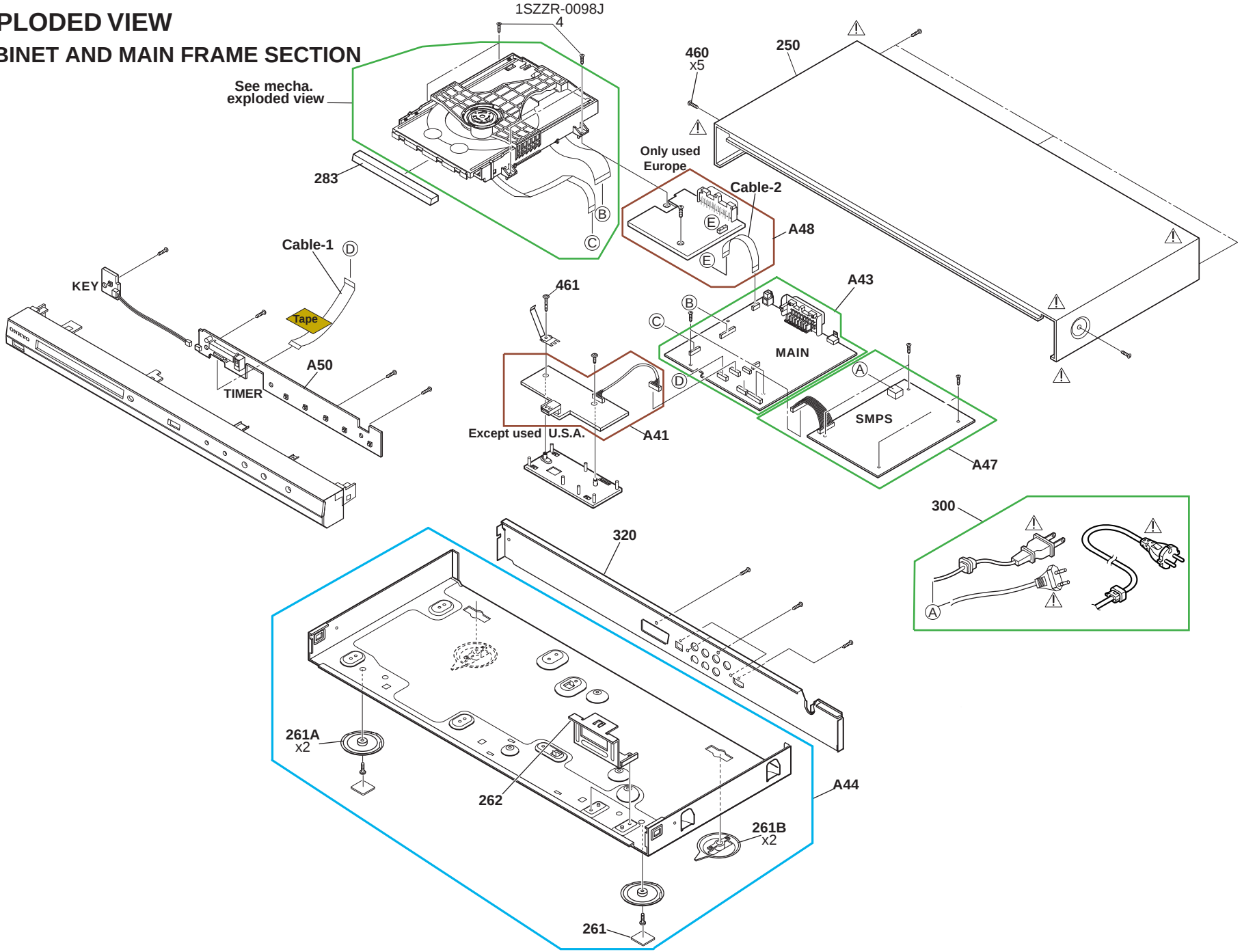
COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

ONKYO®
IMAGINATIVE SIGHT & SOUND

EXPLODED VIEW

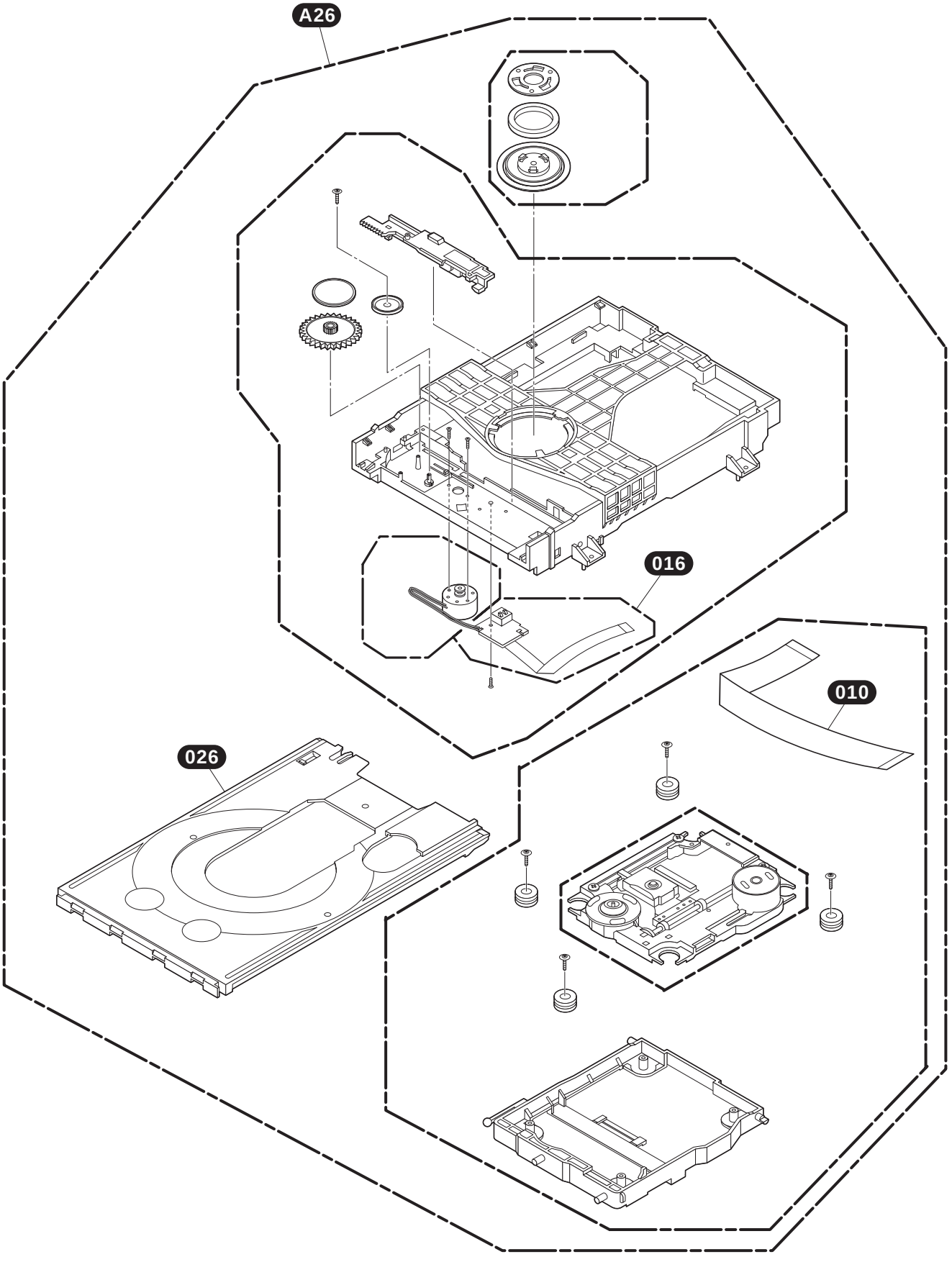
CABINET AND MAIN FRAME SECTION



DV-SP406

EXPLODED VIEW-2

DECK MECHANISM SECTION (DP-12V)



DECK MECHANISM DISASSEMBLY

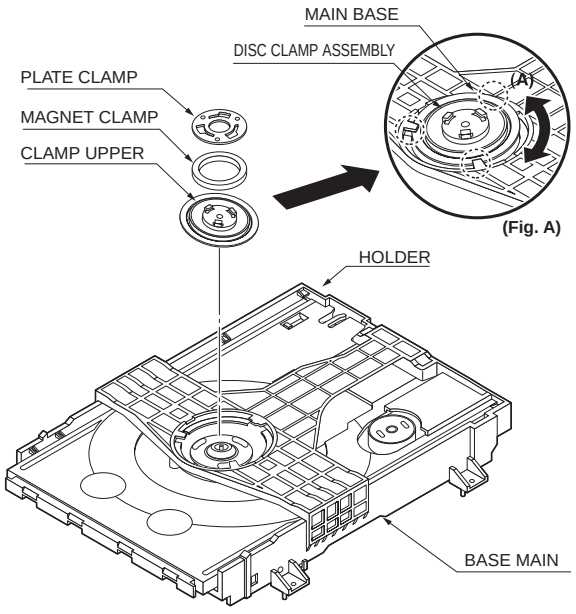


FIG. 1-1

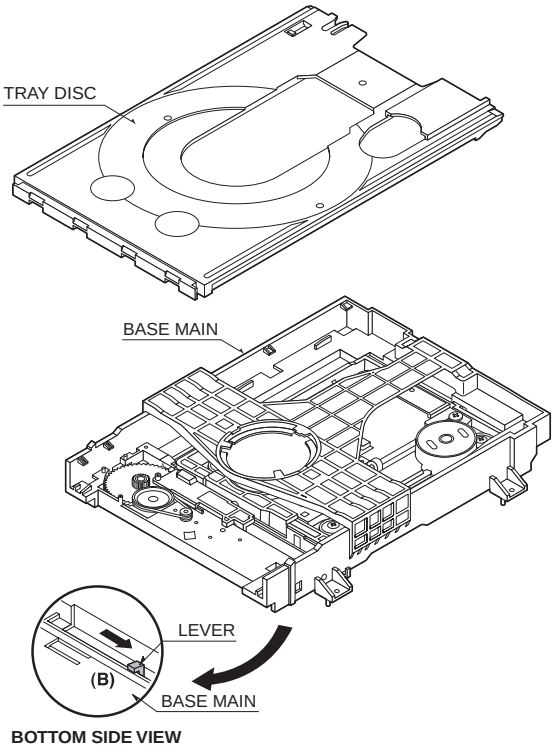


FIG. 2-1

1. MAIN BASE (FIG. 1-1)

1-1. Clamp Assembly Disc

1) Place the Clamp Assembly Disc as Fig. (A)
2) Lift up the Clamp Assembly Disc in direction of arrow(A).
3) Separate the Clamp Assembly Disc from the Holder Clamp.

1-1-1. Plate Clamp

1) Turn the Plate Clamp to counterclockwise direction and then lift up the Plate Clamp.

1-1-2. Magnet Clamp

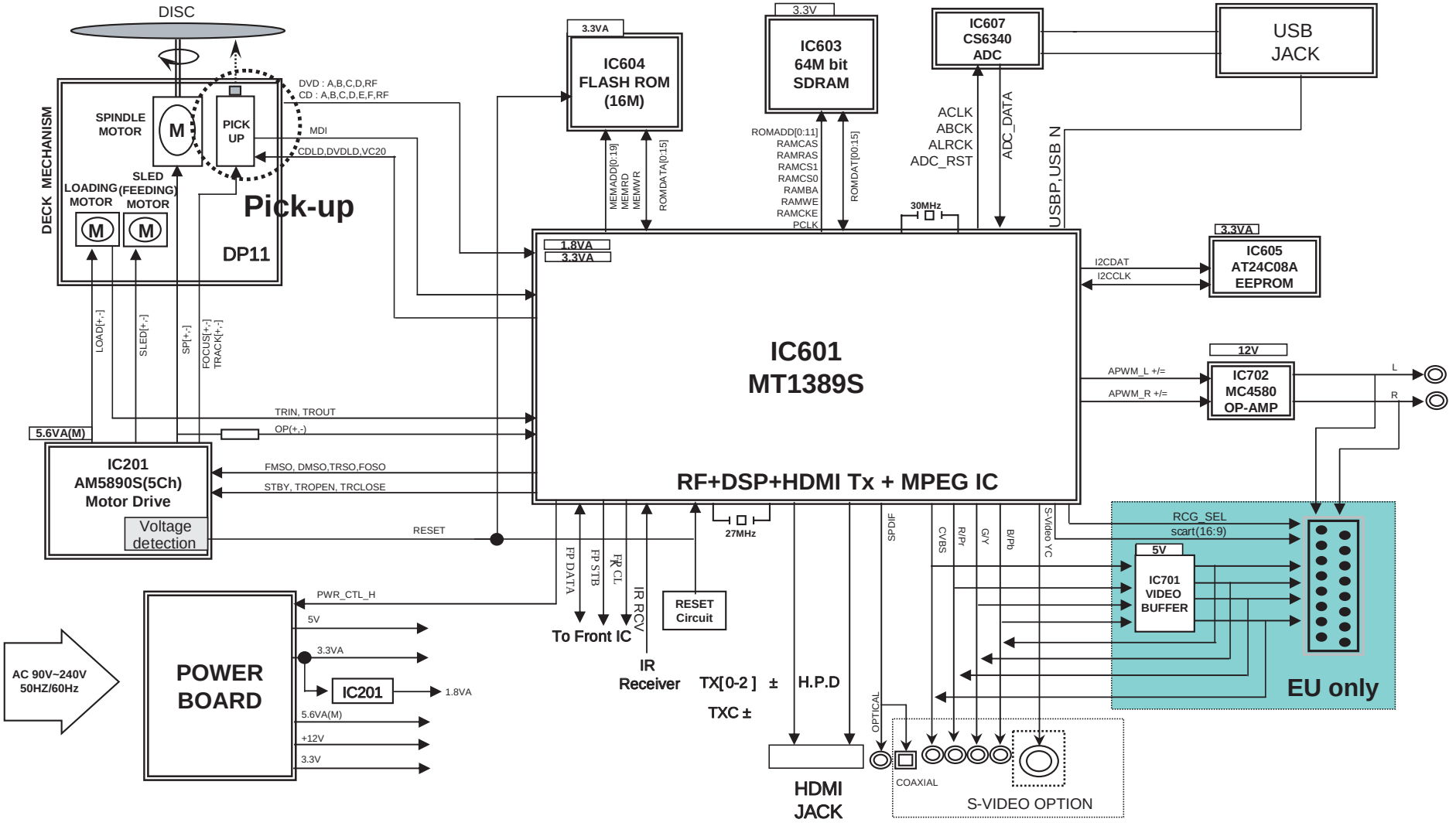
1-1-3. Clamp Upper

2. TRAY DISC (FIG. 2-1)

1) Insert and push a Driver in the emergency eject hole(A) at the right side, or put the Driver on the Lever(B) of the Gear Emergency and pull the Lever(B) in direction of arrow so that the Tray Disc is ejected about 15~20mm.
2) Pull the Tray Disc until it is separated from the Base Main completely.

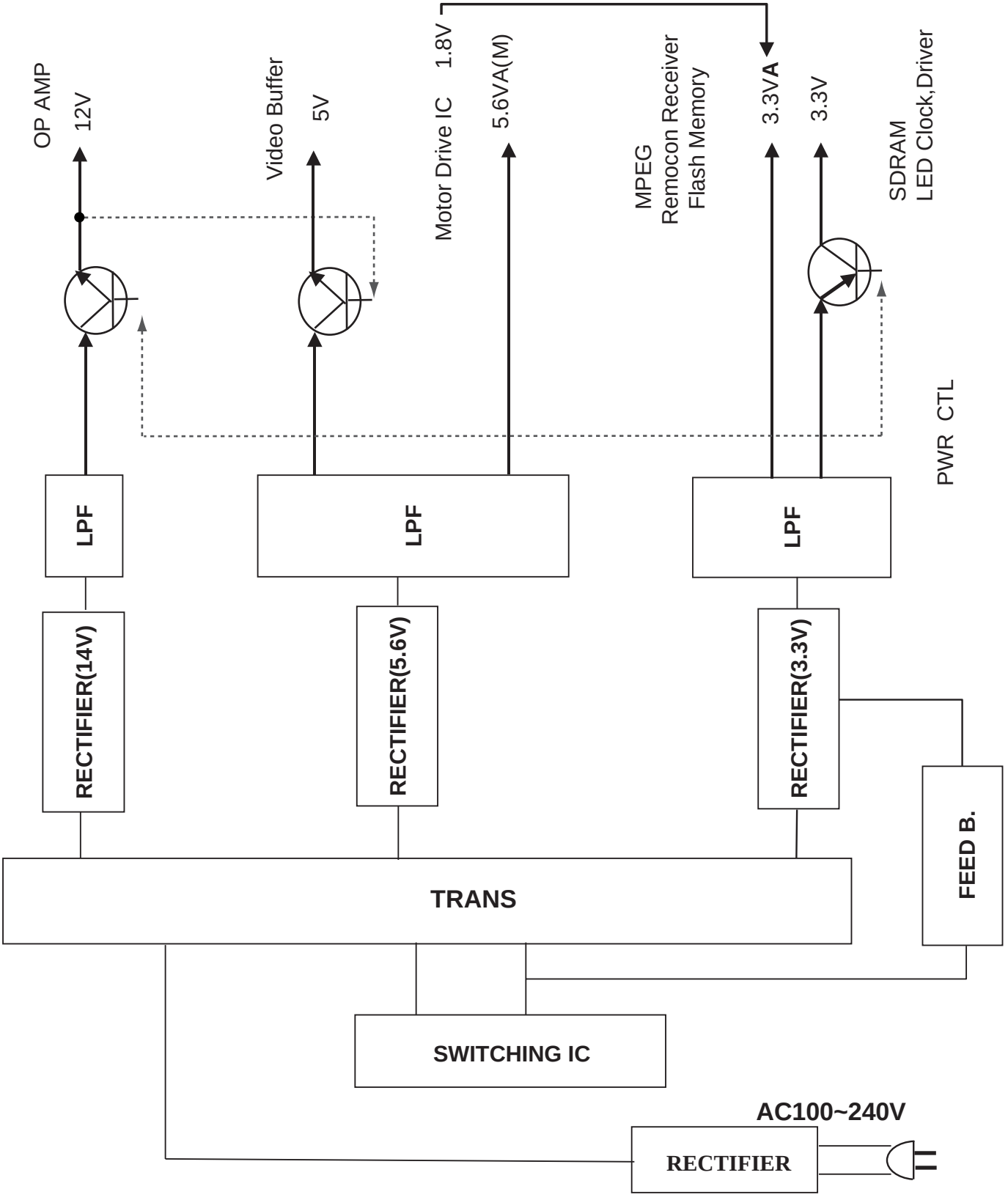
BLOCK DIAGRAMS-1

OVERALL BLOCK DIAGRAM



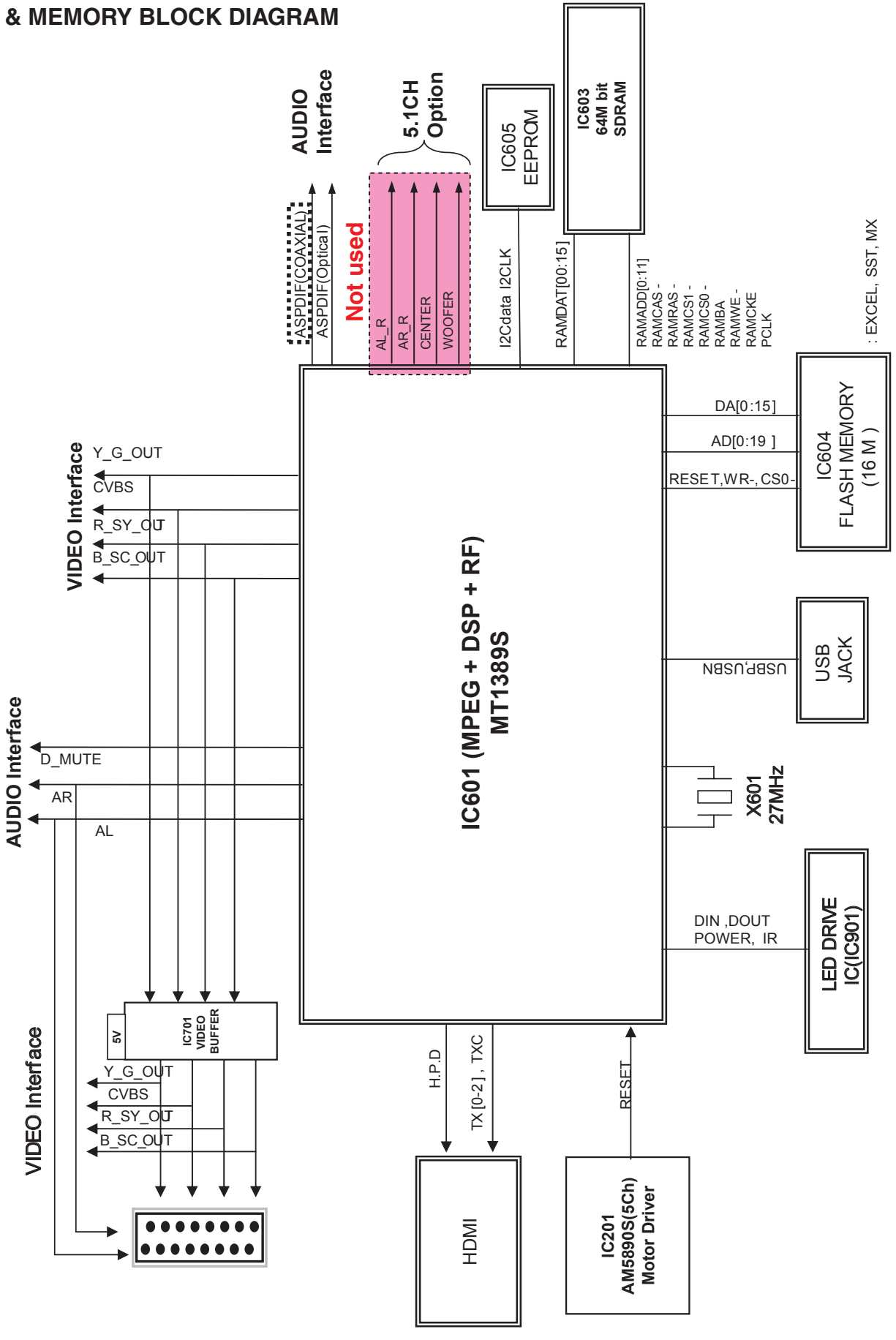
BLOCK DIAGRAMS-2

POWER (SMPS) BLOCK DIAGRAM



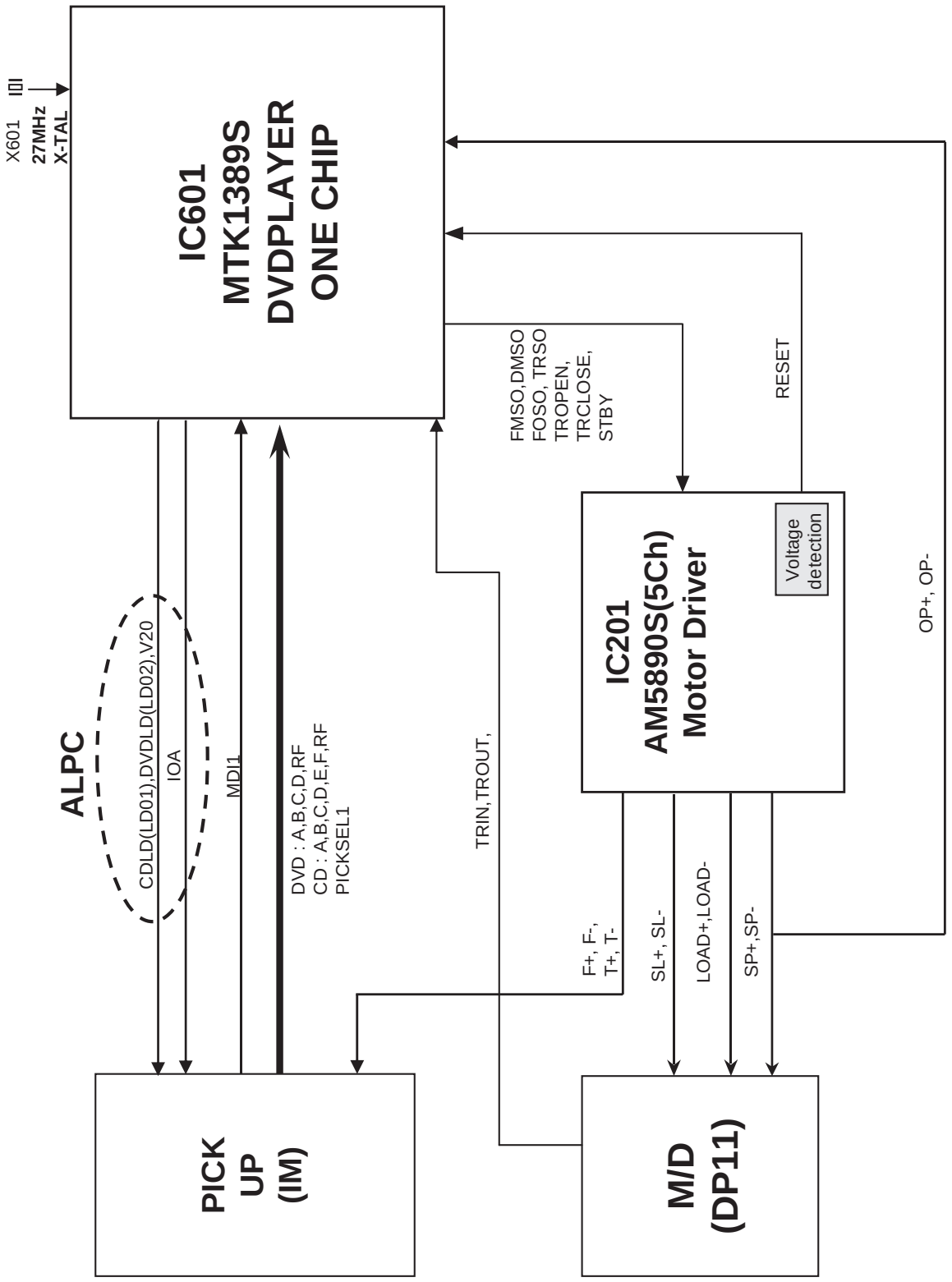
BLOCK DIAGRAMS-3

MPEG & MEMORY BLOCK DIAGRAM



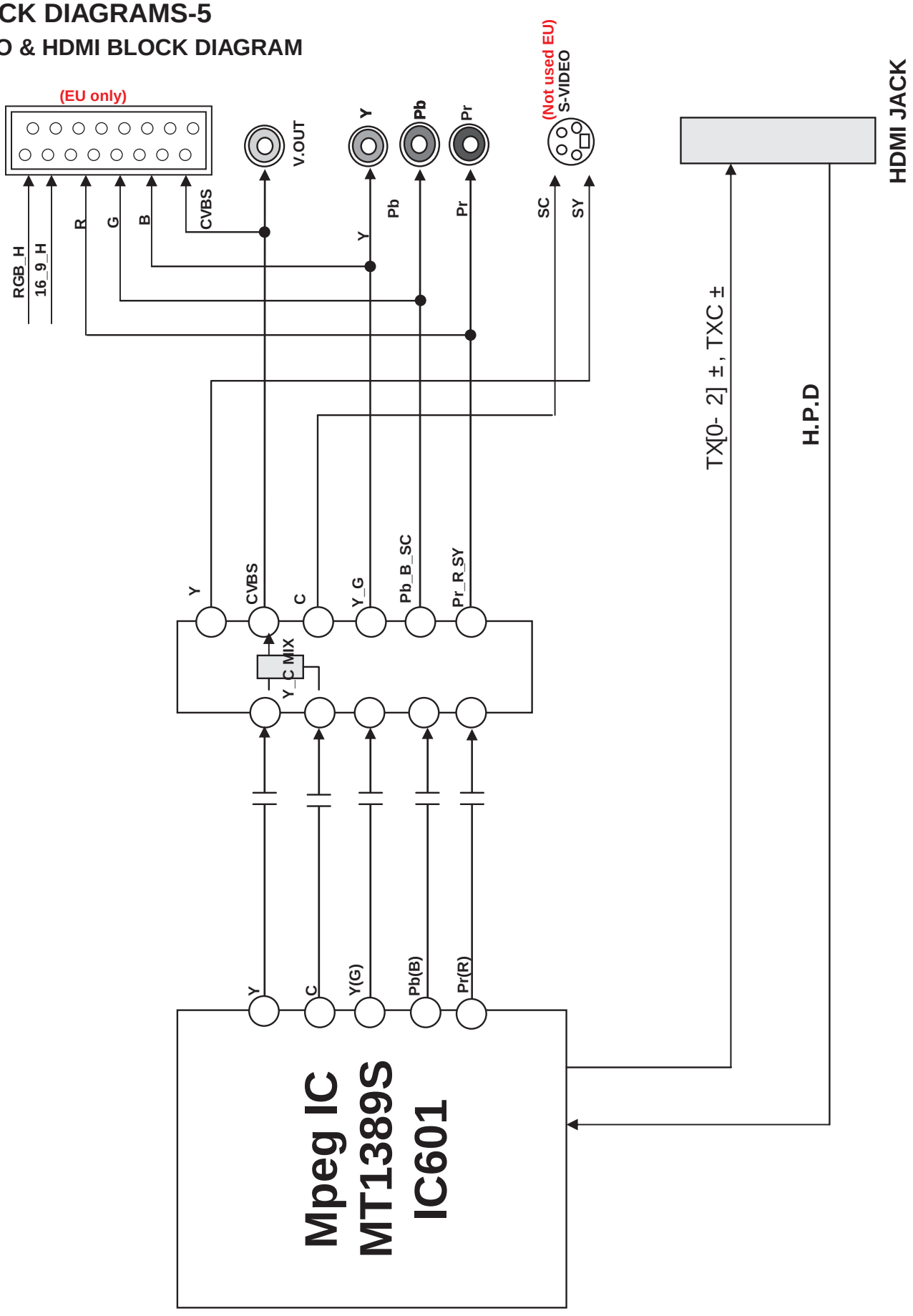
BLOCK DIAGRAMS-4

SERVO BLOCK DIAGRAM



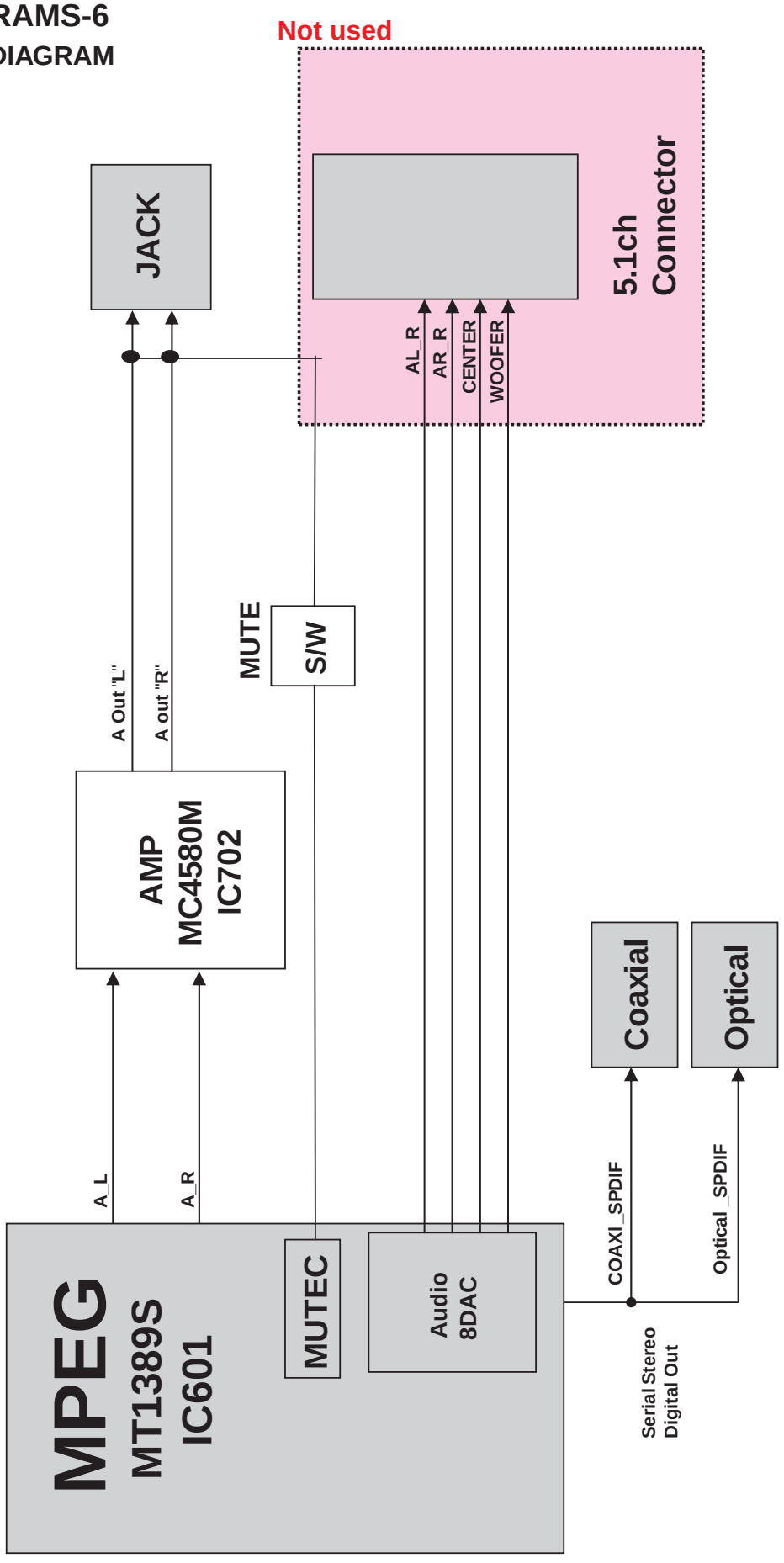
BLOCK DIAGRAMS-5

VIDEO & HDMI BLOCK DIAGRAM

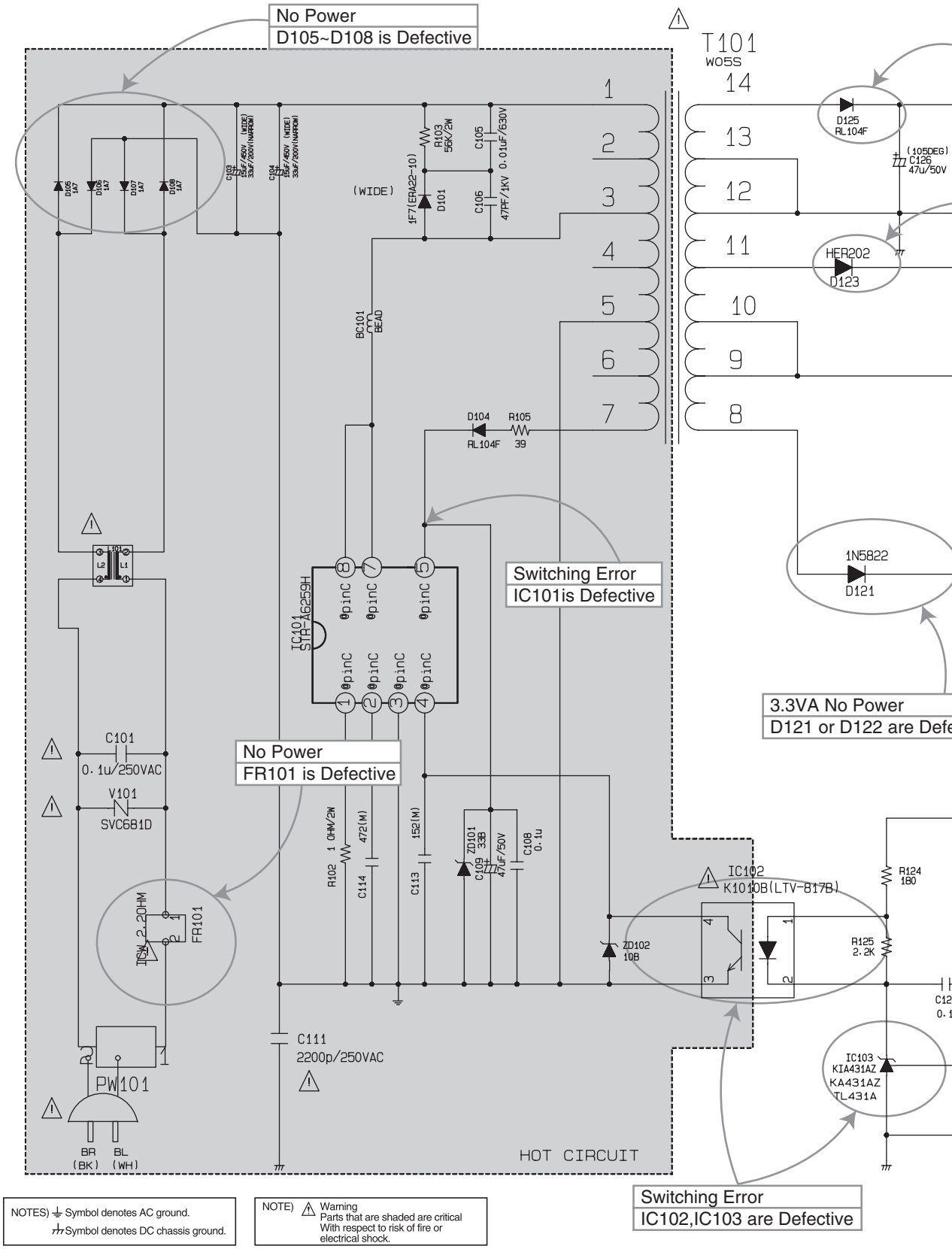


BLOCK DIAGRAMS-6

AUDIO BLOCK DIAGRAM



CIRCUIT DIAGRAMS-1
POWER (SMPS) CIRCUIT DIAGRAM



NOTES) ⏚ Symbol denotes AC ground.
⏚ Symbol denotes DC chassis ground.

NOTE) ⚠ Warning
Parts that are shaded are critical
With respect to risk of fire or
electrical shock.

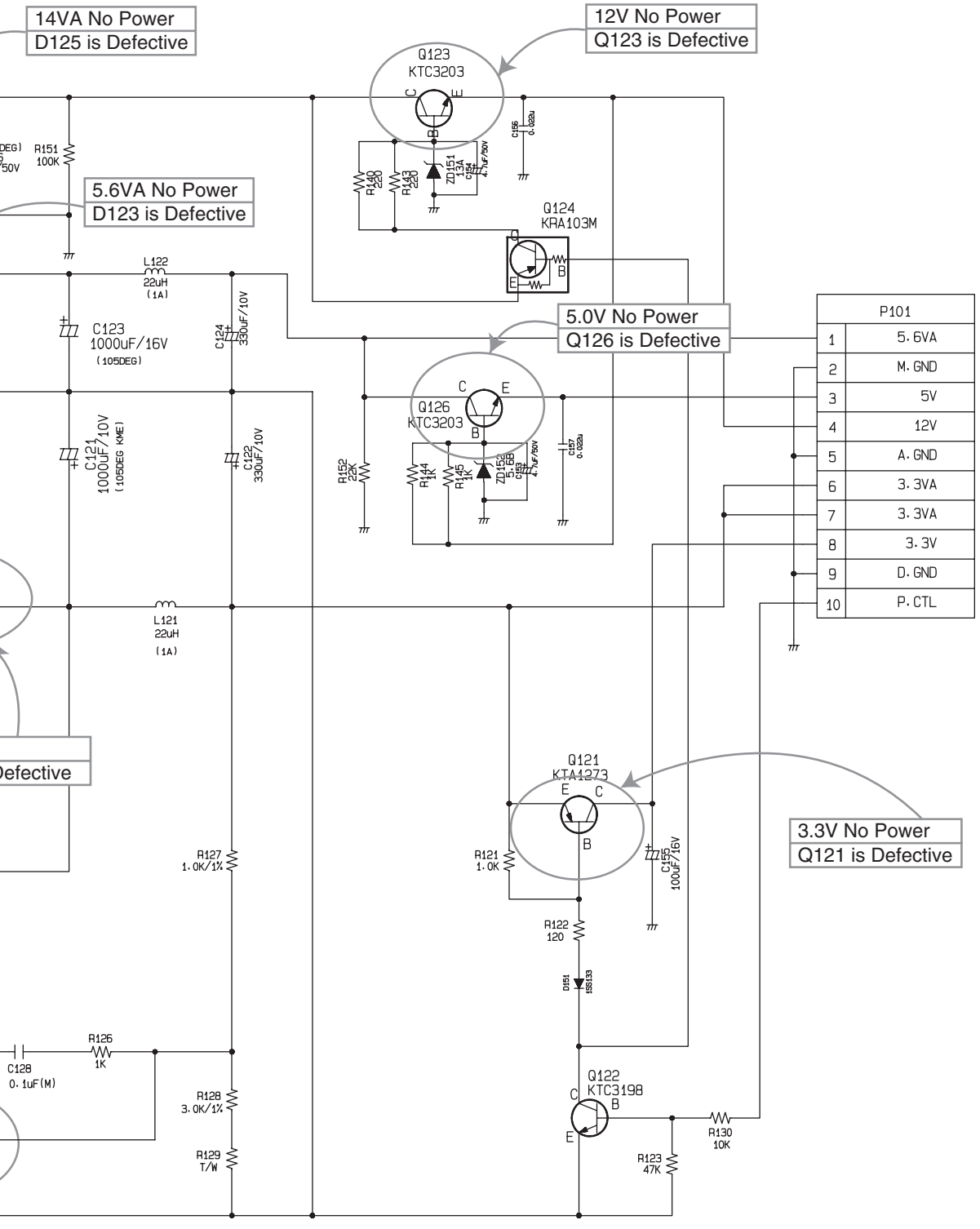
E F G H

IMPORTANT SAFETY

WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE LG CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT. SPECIAL COMPONENTS ARE SHADED ON THE SCHEMATIC FOR EASY IDENTIFICATION. THIS CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT USED. THIS WAY, IMPLEMENTATION OF THE LATEST SAFETY AND PERFORMANCE IMPROVEMENT CHANGES INTO THE SET IS NOT DELAYED UNTIL THE NEW SERVICE LITERATURE IS PRINTED.

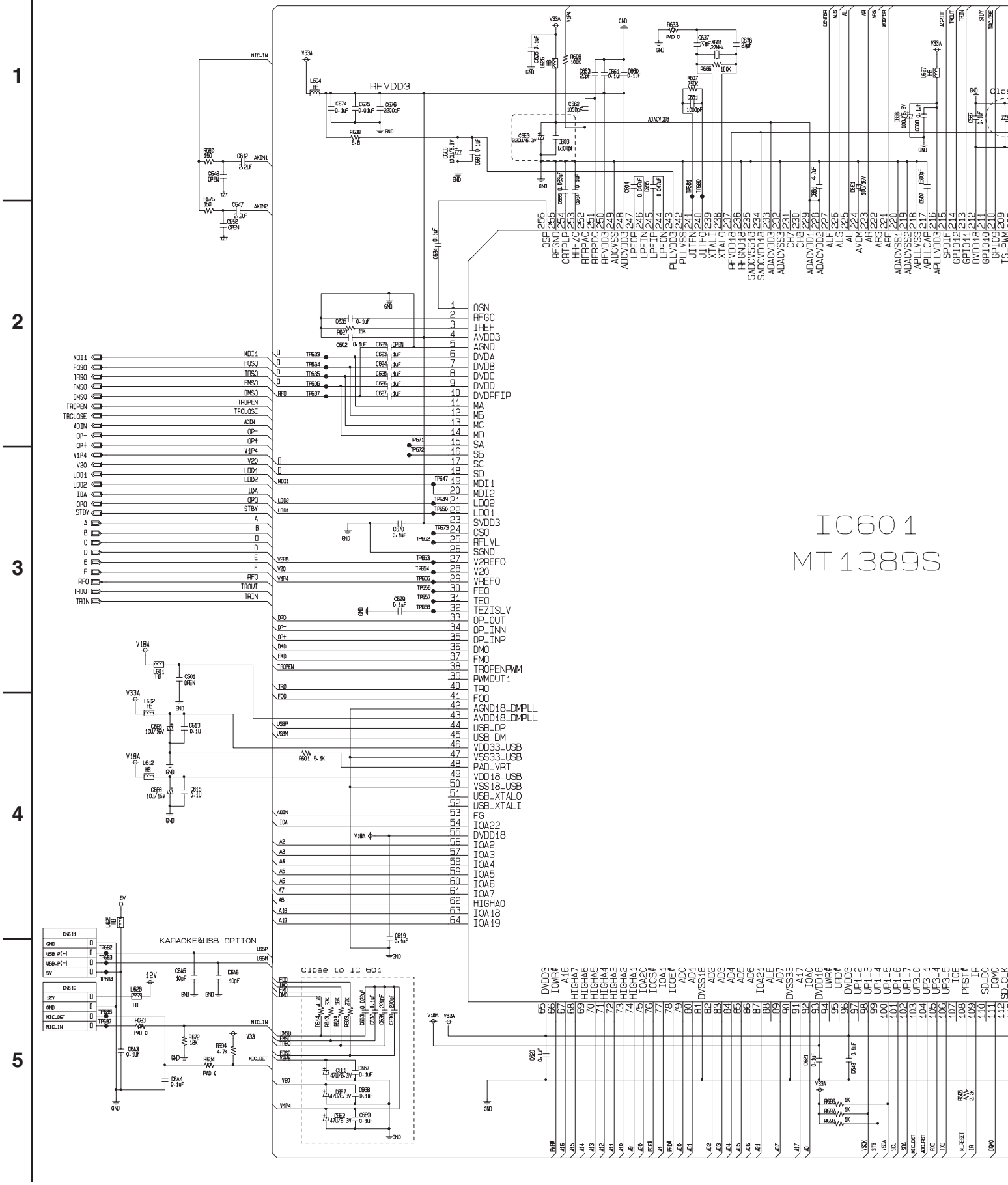
NOTE :

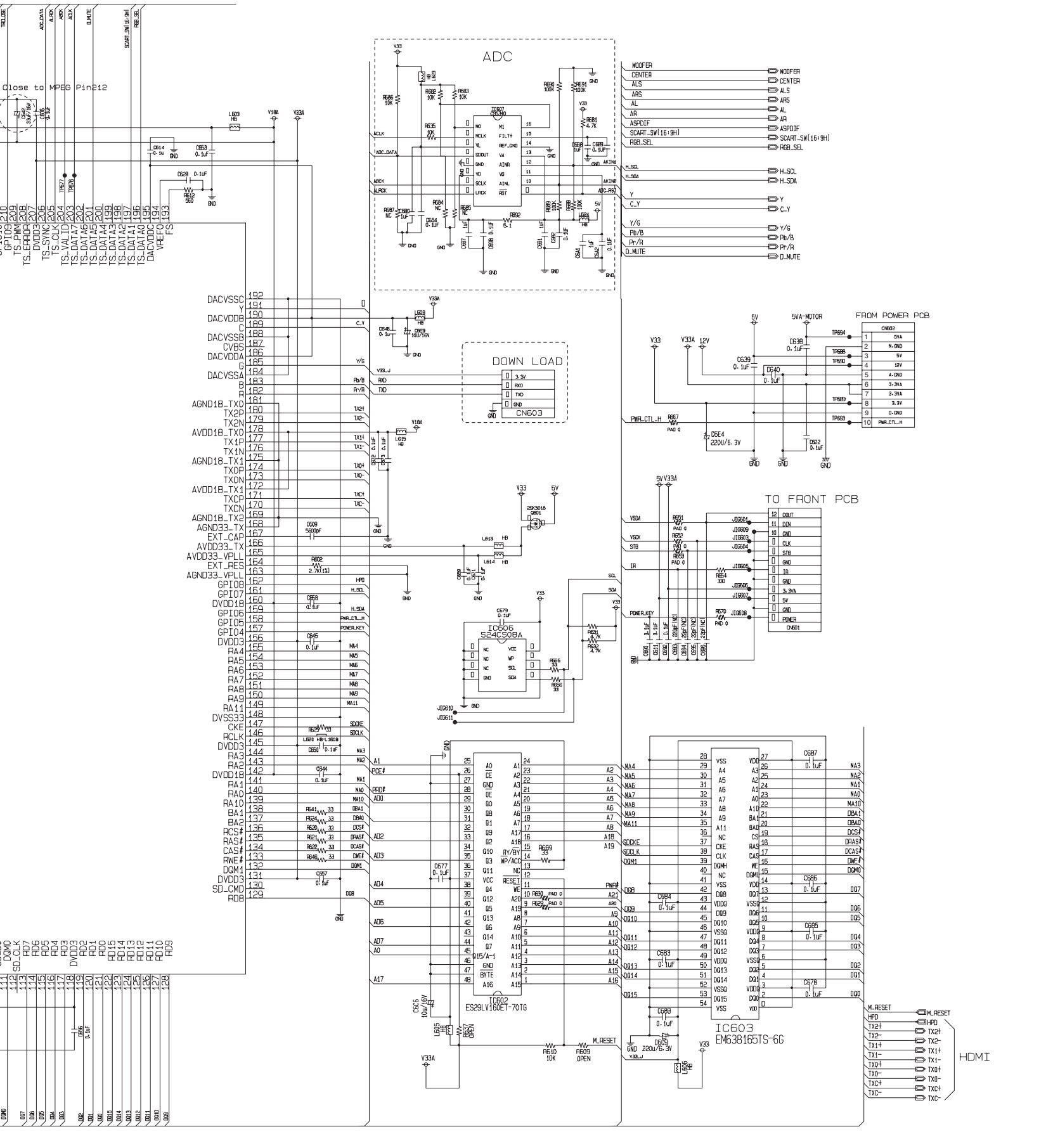
1. Shaded(■) parts are critical for safety. Replace only with specified part number.
2. Voltages are DC-measured with a digital voltmeter during Play mode.



CIRCUIT DIAGRAM-2

MPEG CIRCUIT DIAGRAM




E
F
G
H
ADC
DOWN LOAD
CN603
TO FRONT PCB
FROM POWER PCB
IC602
ES29LV160ET-70TG
IC603
EM638165TS-6G
IC606
S24CS08A
HDMI
Close to MPEG Pin212

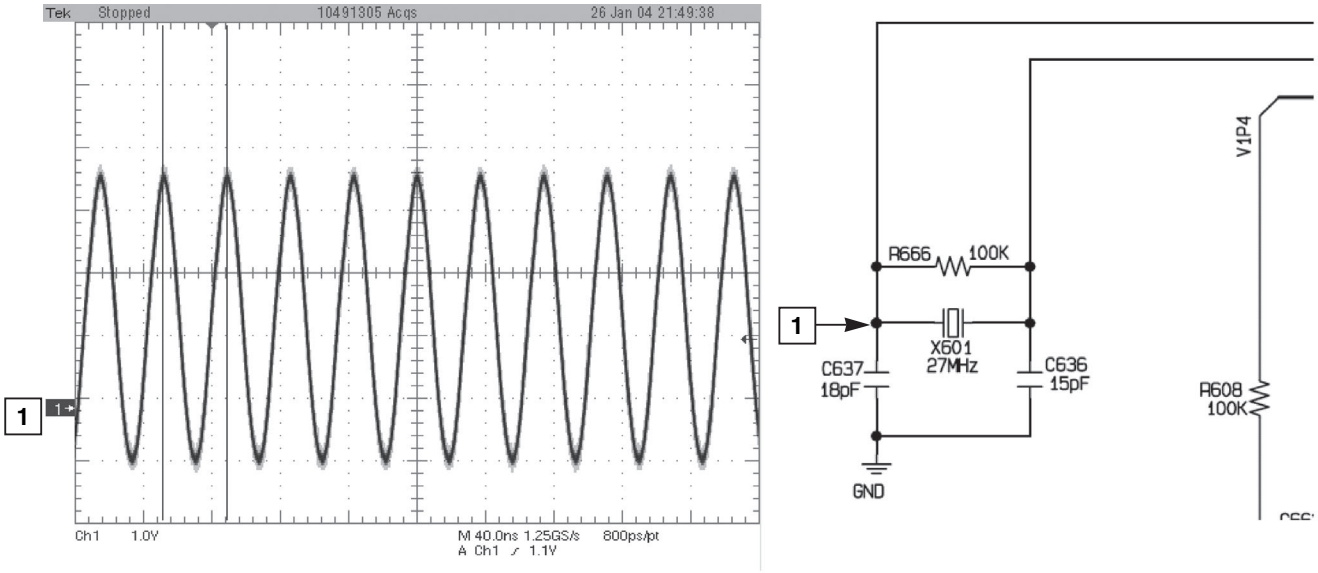

Tek Stopped
10491305 Acqs
26 Jan 04 21:49:38
1
Ch1 1.0V
M 40.0ns 1.25GS/s 800ps/pt
A Ch1 ⟋ 1.1V
R666 100K
X601
27MHz
C637
18pF
C636
15pF
GND
V1P4
R608
100K

FIG 1-1

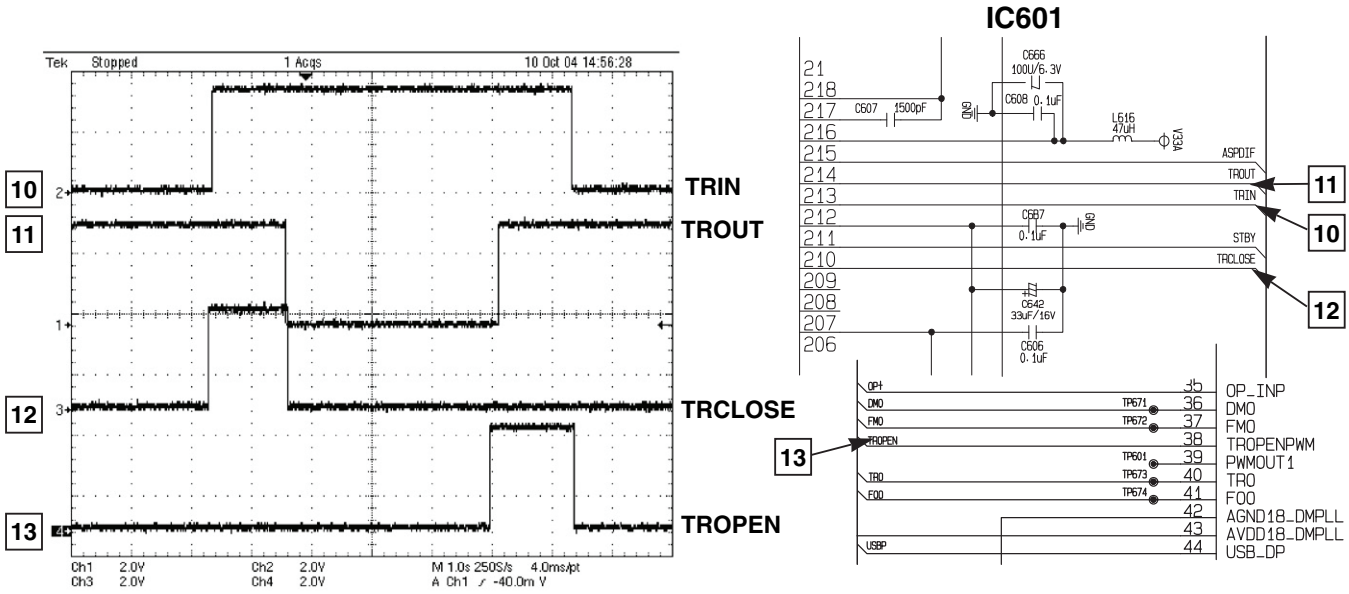
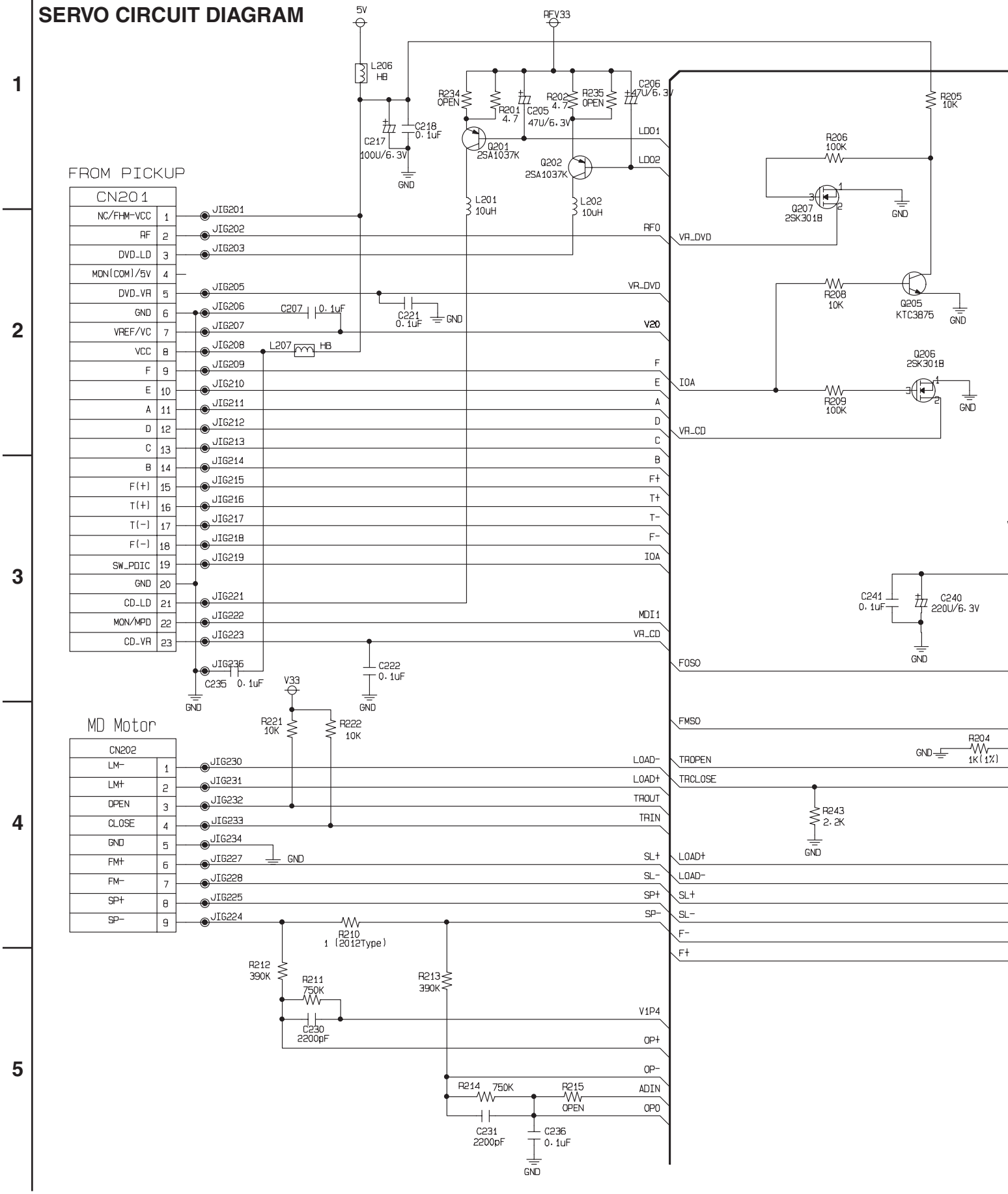
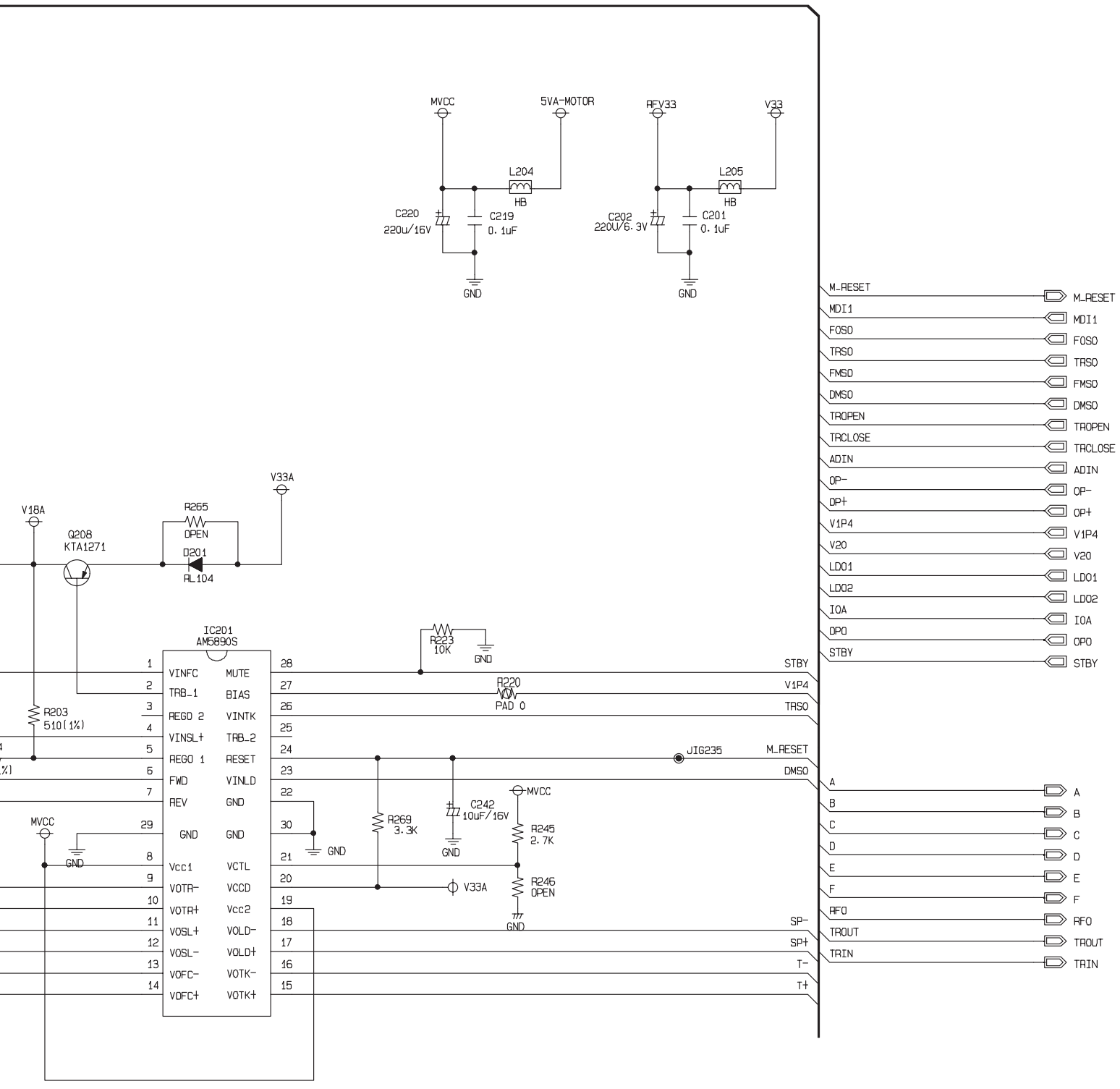

Tek Stopped 1 Acqs 10 Oct 04 14:56:28
Ch1 2.0V Ch2 2.0V M 1.0s 250S/s 4.0ms/pt
Ch3 2.0V Ch4 2.0V A Ch1 ⌿ -40.0m V
10
11
12
13
TRIN
TROUT
TRCLOSE
TROPEN
IC601
C666 100U/6.3V
C607 1500pF
C608 0.1uF
L616 47uH
C687 0.1uF
C642 33uF/16V
C606 0.1uF
GND
ASPDIF
TROUT
TRIN
STBY
TRCLOSE
OP_INP
DMO
FMO
TROPENPWM
PWMOUT1
TRO
FOO
AGND18_DMPLL
AVDD18_DMPLL
USB_DP
TP671
TP672
TP601
TP673
TP674

FIG 3-1

CIRCUIT DIAGRAMS-3

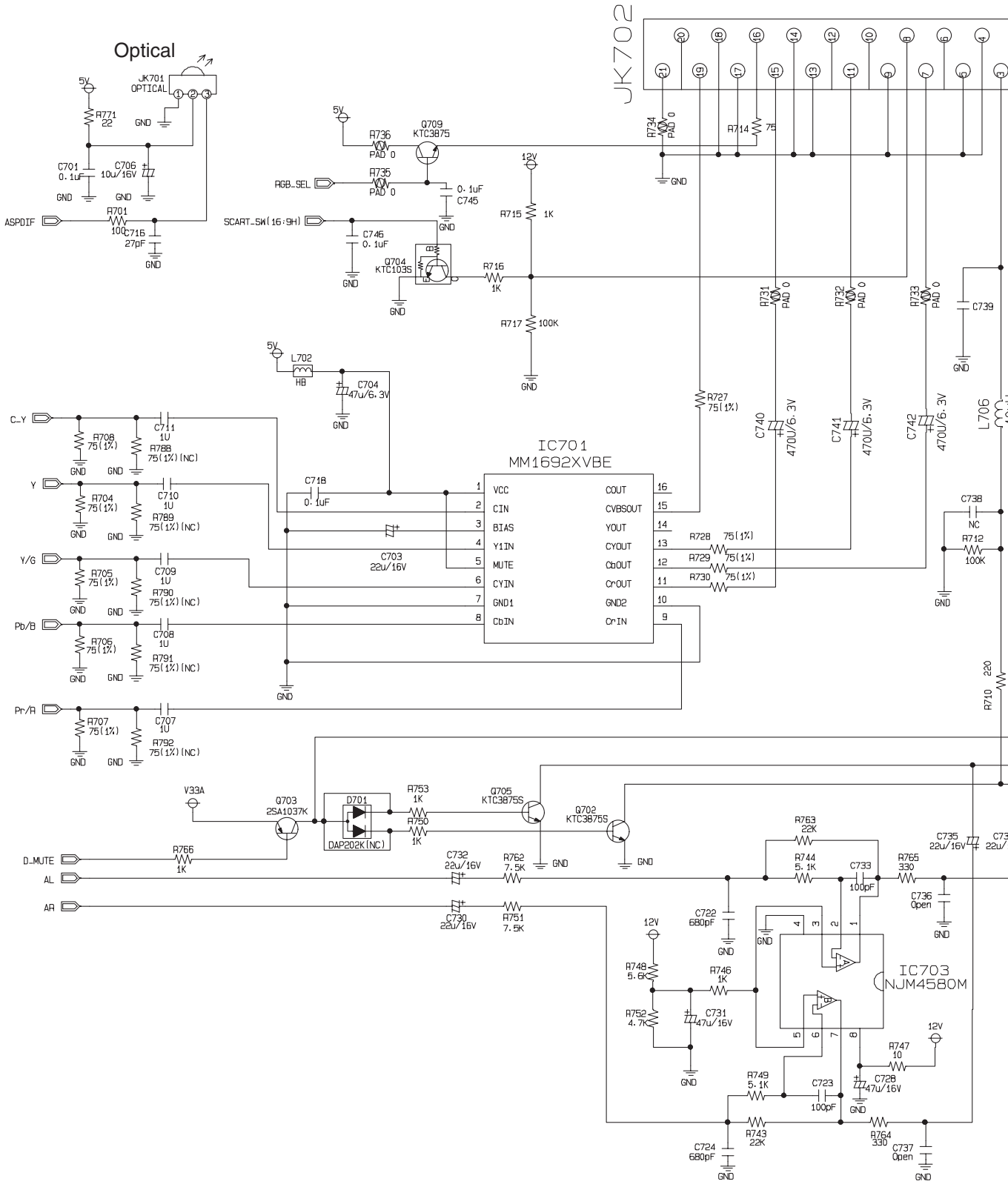
SERVO CIRCUIT DIAGRAM



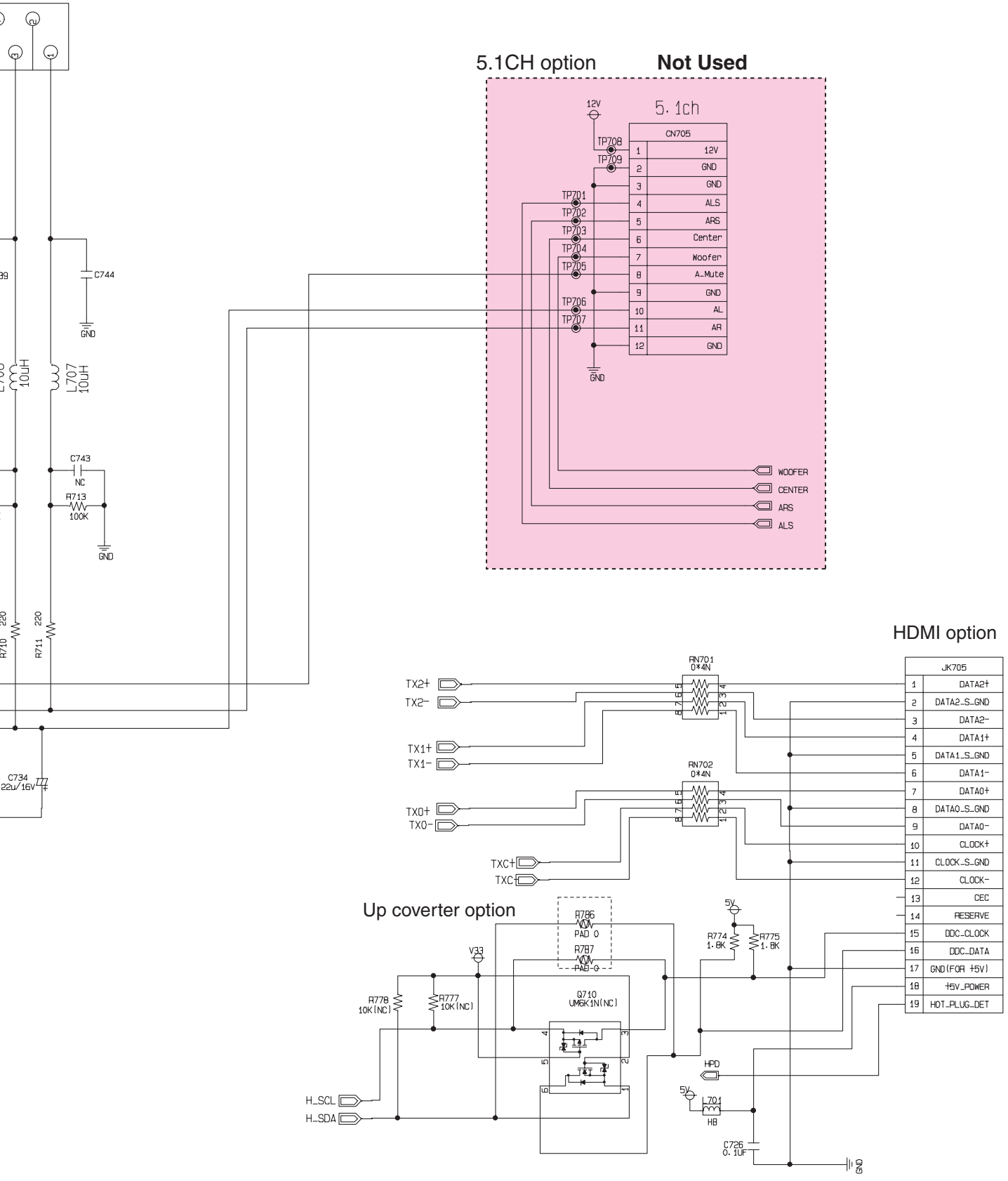

MVCC
5VA-MOTOR
L204
HB
C220
220u/16V
C219
0.1uF
GND
AFV33
V33
L205
HB
C202
220U/6.3V
C201
0.1uF
GND
M_RESET
MDI1
FOSO
TRSO
FMSO
DMSO
TROPEN
TRCLOSE
ADIN
OP-
OP+
V1P4
V20
LDO1
LDO2
IOA
OPO
STBY
V18A
G208
KTA1271
R265
OPEN
D201
RL104
V33A
IC201
AM5890S
R223
10K
GND
R220
0Ω
PAD 0
R203
510(1%)
JIG235
M_RESET
DMSO
R269
3.3K
C242
10uF/16V
MVCC
R245
2.7K
R246
OPEN
V33A
GND
A
B
C
D
E
F
RFO
TROUT
TRIN
SP-
SP+
T-
T+
VINFC
MUTE
TRB_1
BIAS
REGD 2
VINTK
VINSL+
TRB_2
REGD 1
RESET
FWD
VINLD
REV
GND
GND
GND
Vcc1
VCTL
VOTR-
VCCD
VOTR+
Vcc2
VOSL+
VOLD-
VOSL-
VOLD+
VOFC-
VOTK-
VOFC+
VOTK+

CIRCUIT DIAGRAMS-4

AV CIRCUIT DIAGRAM

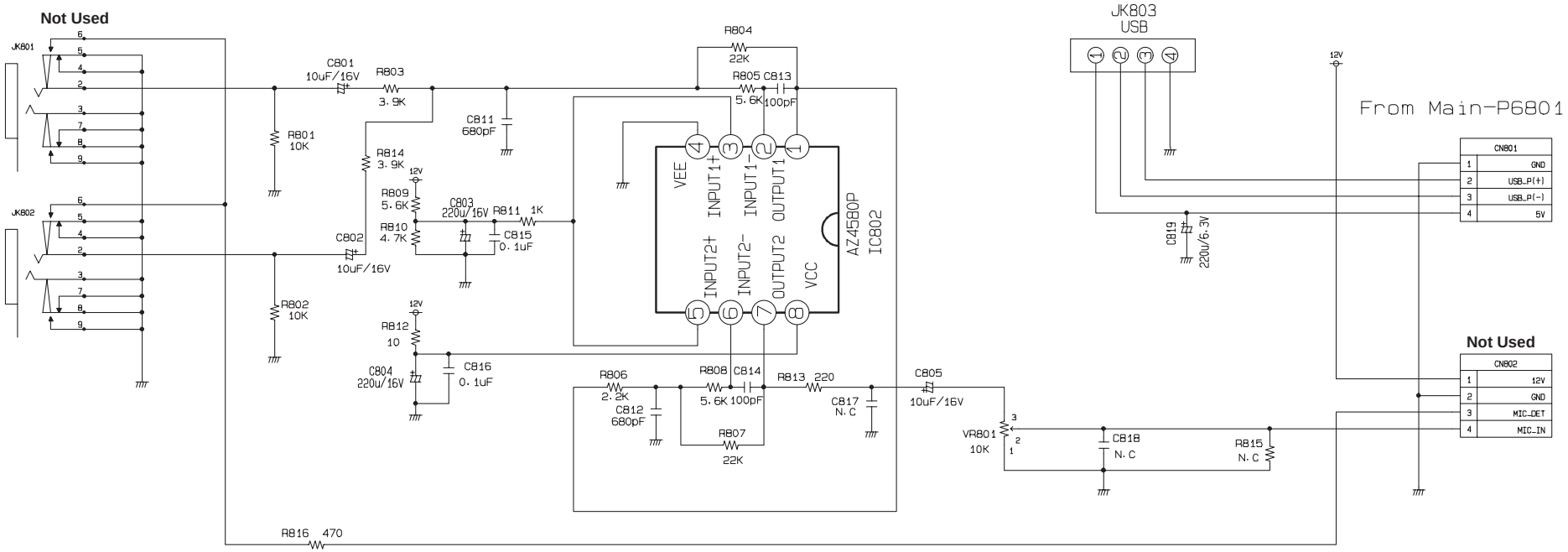


E F G H


5.1CH option
Not Used
12V
5.1ch
CN705
1 12V
2 GND
3 GND
4 ALS
5 ARS
6 Center
7 Woofer
8 A_Mute
9 GND
10 AL
11 AR
12 GND
TP708
TP709
TP701
TP702
TP703
TP704
TP705
TP706
TP707
WOOFER
CENTER
ARS
ALS
C744
L707 10UH
C743 NC
R713 100K
R710 220
R711 220
C734 22u/16V
HDMI option
RN701 0*4N
RN702 0*4N
TX2+
TX2-
TX1+
TX1-
TX0+
TX0-
TXC+
TXC-
JK705
1 DATA2+
2 DATA2_S_GND
3 DATA2-
4 DATA1+
5 DATA1_S_GND
6 DATA1-
7 DATA0+
8 DATA0_S_GND
9 DATA0-
10 CLOCK+
11 CLOCK_S_GND
12 CLOCK-
13 CEC
14 RESERVE
15 DDC_CLOCK
16 DDC_DATA
17 GND(FOR +5V)
18 +5V_POWER
19 HOT_PLUG_DET
Up coverter option
R786 PAD 0
R787 PAD 0
V33
R778 10K(NC)
R777 10K(NC)
Q710 UMGK1N(NC)
R774 1.8K
R775 1.8K
5V
HPD
L701 HB
C726 0.1UF
H_SCL
H_SDA
GND

CIRCUIT DIAGRAMS-5

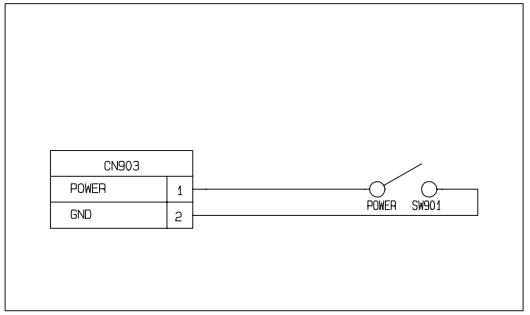
USB CIRCUIT DIAGRAM



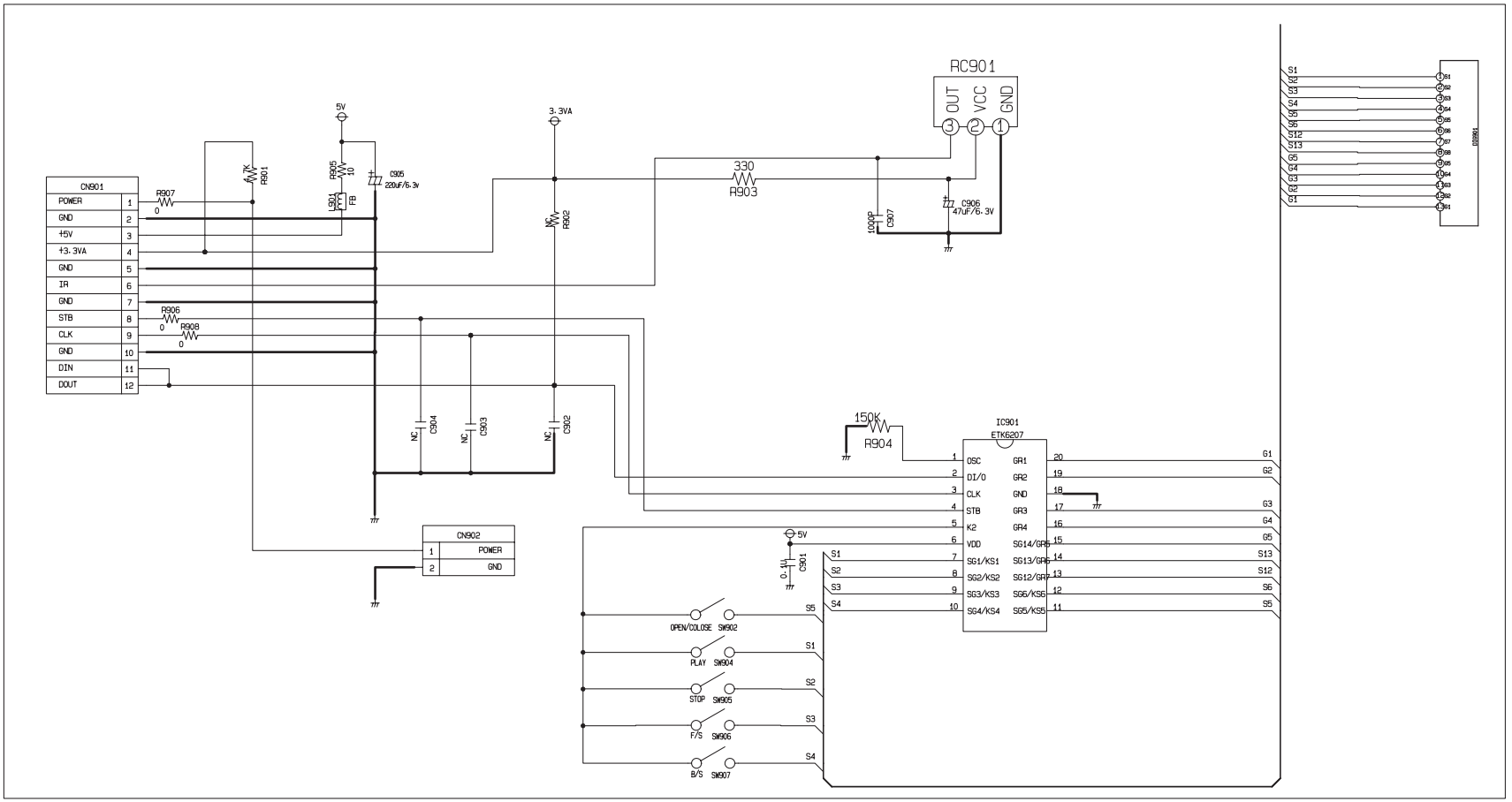
CIRCUIT DIAGRAMS-6

KEY/TIMER CIRCUIT DIAGRAM

POWER KEY CIRCUIT DIAGRAM



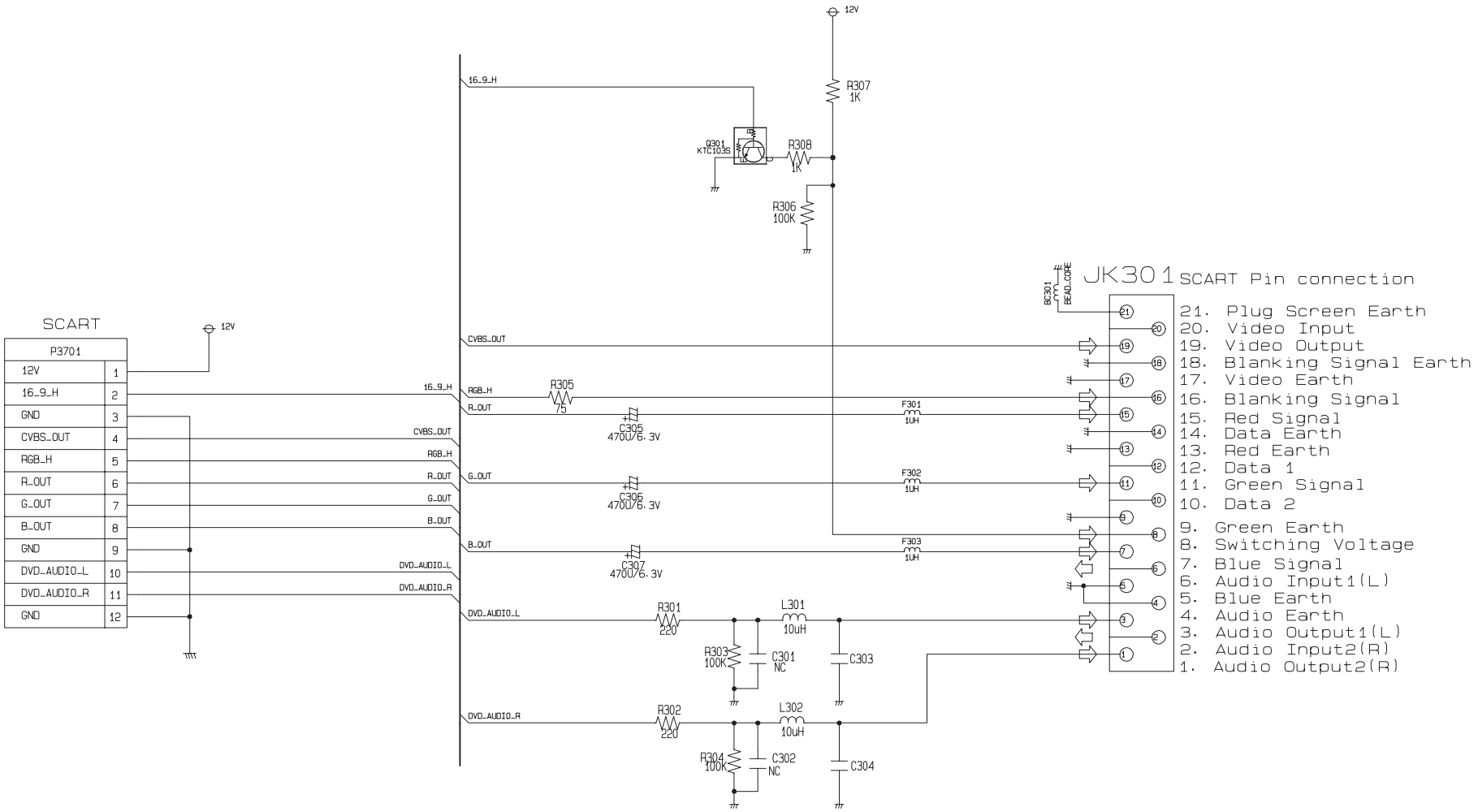
TIMER/ KEY CIRCUIT DIAGRAM



SCHEMATIC DIAGRAM-7

SCART SECTION

EU only



DV-SP406

CIRCUIT VOLTAGE CHART-1

MODE / PIN NO.	STOP	PLAY
IC201(AM5869S)		
1	1.392	1.397
2	1.705	1.637
3	1.375	1.436
4	1.393	1.396
5	1.243	1.238
6	0.01	0.01
7	0.02	0.02
8	5.589	5.53
9	0.001	0
10	0.001	0
11	2.729	2.771
12	2.729	2.687
13	2.733	2.686
14	2.733	2.757
15	2.739	2.701
16	2.739	2.725
17	2.734	3.725
18	2.734	1.656
19	5.598	5.55
20	3.277	3.253
21	5.598	5.54
22	0.001	0
23	1.395	1.734
24	3.275	3.251
25	5.574	5.51
26	1.392	1.391
27	1.392	1.391
28	0.019	3.197
29	0	0
30	0	0
IC601(MT1389S)		
1	1.728	1.694
2	1.146	1.826
3	0.874	0.883
4	3.259	3.243
5	0.002	0.002
6	0.381	0.381
7	0.391	0.361
8	0.376	0.353
9	0.382	0.346
10	1.741	1.708
11	2.004	2.048
12	2.001	2.045
13	2.003	2.056
14	2.004	2.043
15	0.769	0.439
16	0.769	0.439
17	1.996	1.982
18	1.996	2.241
19	0	0.179
20	0	0.179
21	3.213	2.352
22	3.213	2.352
23	3.237	3.242
24	2.241	2.799
25	0.773	1.367
26	0.002	0.002
27	2.516	2.764
28	1.995	2.003
29	1.389	1.388
30	1.374	1.489
31	1.579	1.364

MODE / PIN NO.	STOP	PLAY
32	1.578	1.359
33	2.431	1.824
34	2.593	1.828
35	2.196	1.684
36	1.391	1.834
37	1.391	1.466
38	0.008	0.009
39	1.391	1.391
40	1.388	1.382
41	1.387	1.422
42	0.002	0.001
43	1.859	1.856
44	0.011	0.008
45	0.011	0.008
46	3.281	3.272
47	0.002	0.002
48	0.819	0.794
49	1.859	1.854
50	0.002	0.002
51	0.971	0.864
52	0.971	0.717
53	3.261	0.017
54	3.241	0.022
55	1.848	1.851
56	1.954	2.257
57	1.884	2.054
58	1.947	2.239
59	1.694	1.604
60	1.785	1.783
61	1.816	2.346
62	1.997	1.652
63	0.127	0.125
64	0.012	0.015
65	3.285	3.277
66	3.285	3.276
67	1.393	1.093
68	1.759	1.806
69	1.251	3.043
70	2.245	3.006
71	1.249	3.131
72	0.305	0.712
73	2.466	1.706
74	2.759	1.332
75	0.011	0.013
76	0.011	0.013
77	2.079	1.895
78	0.011	0.012
79	1.369	1.523
80	1.705	1.803
81	0.002	0.002
82	0.585	0.854
83	0.971	0.956
84	1.561	1.616
85	1.547	1.469
86	1.683	0.974
87	0.021	0.024
88	1.171	1.127
89	1.368	1.117
90	0.002	0.002
91	0.025	0.024
92	1.998	1.846
93	1.876	1.828
94	3.254	3.257

MODE / PIN NO.	STOP	PLAY
95	3.256	3.252
96	3.286	3.276
97	0.021	0.078
98	3.227	3.232
99	3.159	3.151
100	0.128	0.127
101	3.276	3.275
102	3.276	0
103	3.276	3.277
104	3.276	3.278
105	3.251	3.278
106	3.264	3.276
107	0.023	0.024
108	3.295	3.293
109	2.991	3.011
110	0.021	0.024
111	2.293	1.965
112	0.024	0.081
113	0.972	0.659
114	0.859	0.643
115	0.982	0.648
116	1.032	0.667
117	1.507	0.945
118	3.286	3.277
119	1.129	0.876
120	1.119	0.813
121	1.251	1.317
122	0.814	0.547
123	1.731	1.323
124	1.686	1.234
125	1.414	1.245
126	1.229	0.751
127	1.175	0.727
128	1.095	0.775
129	1.326	0.739
130	0.055	0.046
131	3.286	3.276
132	2.296	1.916
133	3.001	2.834
134	3.159	3.093
135	3.065	3.066
136	2.815	2.669
137	1.473	1.532
138	1.667	1.572
139	0.038	0.093
140	0.041	0.612
141	2.061	1.647
142	1.842	1.825
143	2.304	1.994
144	1.372	1.534
145	3.286	3.277
146	1.479	1.431
147	3.261	3.276
148	0.002	0.002
149	0.032	0.039
150	0.079	0.081
151	0.051	0.054
152	1.444	1.529
153	1.489	1.561
154	1.459	1.521
155	1.516	1.503
156	3.288	3.275
157	3.127	3.125

MODE / PIN NO.	STOP	PLAY
158	3.266	3.258
159	4.82	4.82
160	1.842	1.829
161	4.84	4.84
162	0.021	0.017
163	0.002	0.002
164	1.331	1.33
165	3.099	3.086
166	3.099	3.086
167	0.345	0.208
168	0.001	0.001
169	0.001	0.001
170	0.001	0.001
171	0.003	0.004
172	1.842	1.831
173	0.002	0.001
174	0.002	0.002
175	0.001	0.001
176	0.002	0.003
177	0.002	0.002
178	1.845	1.832
179	0.002	0.002
180	0.002	0.002
181	0.002	0.002
182	0.637	0.032
183	0.701	0.034
184	0.003	0.003
185	0.496	0.127
186	3.251	3.237
187	2.614	2.567
188	0.003	0.002
189	0.676	0.659
190	3.251	3.238
191	0.498	0.281
192	0.002	0.002
193	1.212	1.207
194	1.289	1.203
195	3.251	3.239
196	0.016	0.018
197	0.016	0.018
198	0.024	0.022
199	0.024	0.022
200	0.024	0.023
201	0.128	3.248
202	0.027	0.023
203	0.024	1.523
204	0.023	1.608
205	0.023	1.635
206	2.915	1.321
207	3.266	3.256
208	0.023	0.024
209	0.023	0.024
210	0.018	0.021
211	0.019	3.218
212	1.831	1.829
213	0	0
214	2.945	2.936
215	1.539	1.533
216	3.241	3.251
217	1.892	1.698
218	0.002	0.002
219	0.002	0.002
220	0.002	0.002

CIRCUIT VOLTAGE CHART-2

MODE / PIN NO.	STOP	PLAY
221	1.617	1.615
222	2.261	2.249
223	1.617	1.613
224	0	0
225	1.619	1.611
226	1.617	1.611
227	1.616	1.61
228	3.286	3.249
229	3.286	3.248
230	1.618	1.614
231	1.616	1.611
232	0.003	0.003
233	3.286	3.249
234	1.841	1.827
235	0.002	0.002
236	0.003	0.003
237	1.841	1.827
238	0.871	0.868
239	0.887	0.868
240	1.071	0.864
241	1.035	0.822
242	0.002	0.002
243	3.202	3.179
244	1.636	1.641
245	0.321	1.549
246	1.986	1.543
247	0.221	1.517
248	3.259	3.244
249	0.002	0.002
250	3.259	2.243
251	0.691	1.711
252	1.375	1.366
253	3.236	1.424
254	1.368	1.788
255	0.002	0.002
256	1.723	1.718
IC602(ES29LV160ET)		
1	1.392	0.118
2	2.326	0.339
3	0.883	3.065
4	1.468	0.338
5	1.247	3.163
6	0.299	0.619
7	2.478	1.645
8	2.767	1.648
9	0.012	0.014
10	0.021	0.014
11	3.274	3.242
12	3.266	3.239
13	3.268	3.244
14	3.268	3.244
15	1.204	0.776
16	0.014	0.015
17	0.102	3.085
18	2.006	1.765
19	1.114	1.354
20	2.285	2.265
21	1.698	2.084
22	1.953	2.118
23	1.891	1.945
24	1.964	2.175
25	2.087	1.869
26	0.012	0.014

MODE / PIN NO.	STOP	PLAY
27	0.002	0.001
28	0.012	0.013
29	1.376	1.561
30	0.528	0.202
31	1.706	1.766
32	0.436	0.775
33	0.961	1.188
34	0.441	0.587
35	0.588	1.134
36	0.365	0.729
37	3.267	3.241
38	1.383	1.442
39	0.432	1.291
40	1.505	1.536
41	0.413	0.847
42	1.637	1.527
43	0.447	1.028
44	1.339	1.142
45	2.012	1.846
46	0.001	0.001
47	0.001	0.001
48	0.014	0.026
IC603(HY57V64)		
1	3.281	3.239
2	1.264	1.141
3	3.281	3.239
4	1.154	1.055
5	1.145	1.077
6	0.002	0
7	1.504	1.021
8	1.005	1.241
9	3.281	3.241
10	1.003	1.069
11	0.843	0.633
12	0.002	0
13	0.968	0.782
14	3.284	3.241
15	2.316	1.389
16	3.181	3.001
17	3.022	2.748
18	3.098	2.934
19	2.856	3.239
20	1.485	1.233
21	1.679	1.229
22	0.039	0.097
23	0.411	0.715
24	2.076	1.238
25	2.318	1.775
26	1.384	1.507
27	3.279	3.241
28	0.002	0.001
29	1.511	1.381
30	1.543	1.649
31	1.651	1.539
32	1.705	1.508
33	0.054	0.084
34	0.087	0.083
35	0.033	0.036
36	0	0
37	3.271	3.246
38	1.518	1.462
39	2.316	1.538
40	0	0

MODE / PIN NO.	STOP	PLAY
41	0.002	0.001
42	1.339	0.796
43	3.278	3.267
44	1.117	0.885
45	1.217	1.009
46	0.002	0
47	1.231	1.144
48	1.473	0.745
49	3.279	3.267
50	1.742	1.127
51	1.786	1.281
52	0.002	0.001
53	0.828	1.051
54	0.002	0.001
IC606(S524C80D80-SCB1)		
1	0.002	0
2	0.002	0
3	0.002	0
4	0.002	0
5	3.285	3.252
6	3.285	3.251
7	0.002	0
8	3.289	3.252
IC607(CS5340)		
1	3.283	3.247
2	0.026	0.024
3	3.287	3.251
4	2.929	2.909
5	0.001	0.001
6	4.911	4.88
7	0.022	0.025
8	0.022	0.025
9	3.286	3.253
10	2.448	2.439
11	2.448	2.437
12	2.442	2.434
13	4.89	4.89
14	0.002	0
15	0.346	0.346
16	3.283	3.246
IC701(MM1692XVBE)		
1	4.859	4.83
2	2.284	2.276
3	2.436	2.427
4	1.851	1.786
5	4.861	4.84
6	1.847	1.691
7	0.014	0.013
8	2.282	2.271
9	2.255	2.271
10	0.003	0.003
11	2.245	2.252
12	2.229	2.239
13	1.961	1.729
14	1.945	1.727
15	1.901	1.701
16	2.231	2.242
IC703(MC4580)		
1	5.57	5.54
2	5.57	5.54
3	5.57	5.54
4	0.001	0.001
5	5.57	5.54

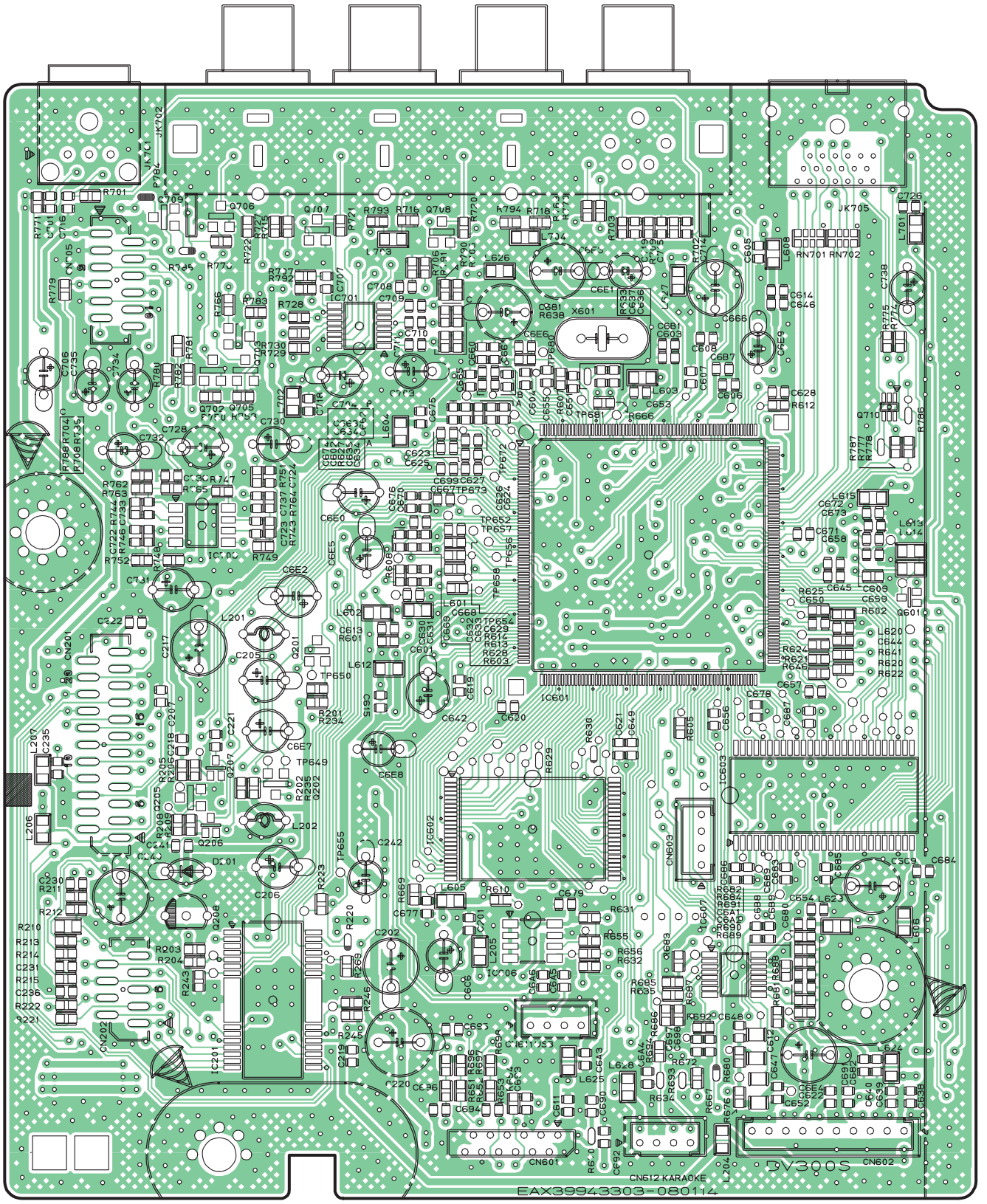
MODE / PIN NO.	STOP	PLAY
6	5.57	5.54
7	5.57	5.54
8	12.21	12.13
Q201		
Emitter	3.297	3.266
Collector	0.384	0.034
Base	3.237	3.221
Q202		
Emitter	3.301	3.039
Collector	0.385	2.328
Base	3.242	2.305
Q205		
Emitter	0	0.002
Collector	0.008	4.887
Base	0.651	0.019
Q206		
Emitter	0	0.001
Collector	0	0.179
Base	3.234	0.022
Q207		
Emitter	0	0.001
Collector	0	0.001
Base	0.008	4.839
Q208		
Emitter	1.751	1.705
Collector	1.885	1.886
Base	2.482	2.461
Q601		
Drain	3.296	3.271
Gate	3.107	3.093
Source	4.912	4.912
Q702		
Emitter	0.001	0.001
Collector	0.005	0.002
Base	0.716	0.667
Q703		
Emitter	3.269	3.257
Collector	3.239	3.115
Base	2.558	3.247
Q705		
Emitter	0.001	0.001
Collector	0.005	0.003
Base	0.726	0.671
Q706		
Emitter	0.002	0.002
Collector	0.082	0.083
Base	0.729	0.727
Q707		
Emitter	0.001	0.001
Collector	0.085	0.081
Base	0.728	0.728
Q708		
Emitter	0.001	0.001
Collector	0.034	0.035
Base	0.728	0.727
Q709		
Emitter	2.271	2.254
Collector	4.86	4.86
Base	2.921	2.902

CIRCUIT VOLTAGE CHART-3

LOCATION	SPEC	PLAY	
		+	-
C642	33µ F/16V	1.858	0.002
C666	100µ F/6.3V	3.244	0.003
C6C1	10µ F/16V	12.251	0
C6C2	10µ F/16V	11.556	0
C6C6	10µ F/16V	3.257	0.001
C6C9	220µ F/16V	3.259	0.001
C6E0	47µ F/6.3V	2.758	0.001
C6E1	10µ F/16V	1.372	0.002
C6E2	47µ F/6.3V	1.396	0.002
C6E3	220µ F/6.3V	3.239	0.003
C6E4	220µ F/6.3V	3.268	0
C6E5	10µ F/16V	3.261	0.002
C6E6	100µ F/6.3V	3.165	0.003
C6E7	47µ F/6.3V	2.012	0.002
C6E8	10µ F/16V	1.852	0.002
C6E9	10µ F/16V	3.227	0.002
C202	220µ F/6.3V	3.257	0.001
C205	47µ F/6.3V	3.252	3.209
C206	47µ F/6.3V	3.252	2.254
C217	100µ F/6.3V	4.884	0.002
C220	220µ F/16V	5.515	0.016
C240	220µ F/6.3V	1.888	0.001
C242	10µ F/16V	3.266	0.002
C703	22µ F/16V	2.438	0.002
C704	47µ F/6.3V	4.859	0.002
C706	10µ F/16V	4.817	0.002
C728	47µ F/16V	12.256	0.145
C730	22µ F/16V	5.595	1.609
C731	47µ F/16V	5.599	0.002
C732	22µ F/16V	5.595	1.611
C734	22µ F/16V	5.595	0.006
C735	22µ F/16V	5.595	0.006

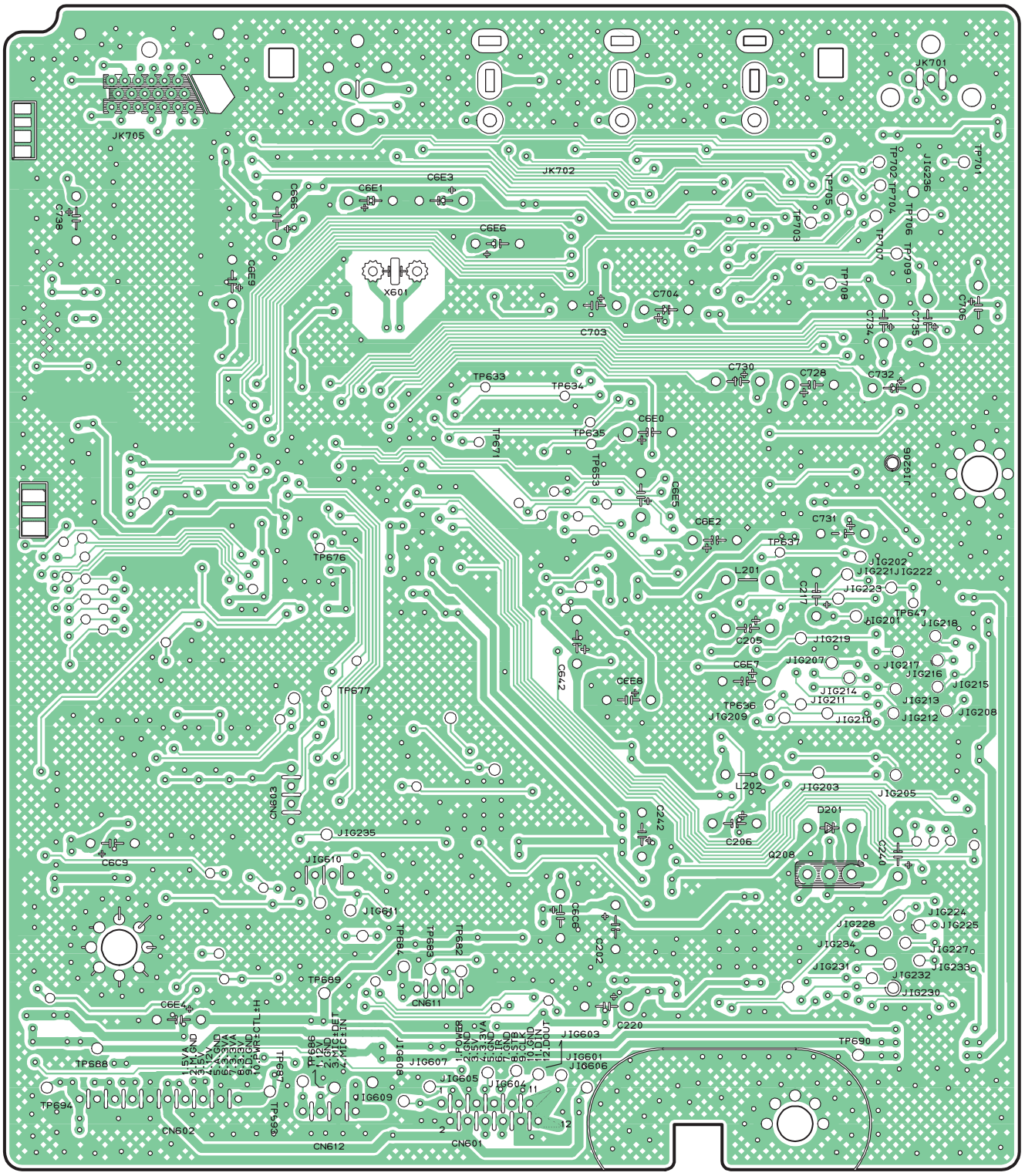
PRINTED CIRCUIT BOARD DIAGRAMS-1

MAIN P.C. BOARD



(TOP VIEW)

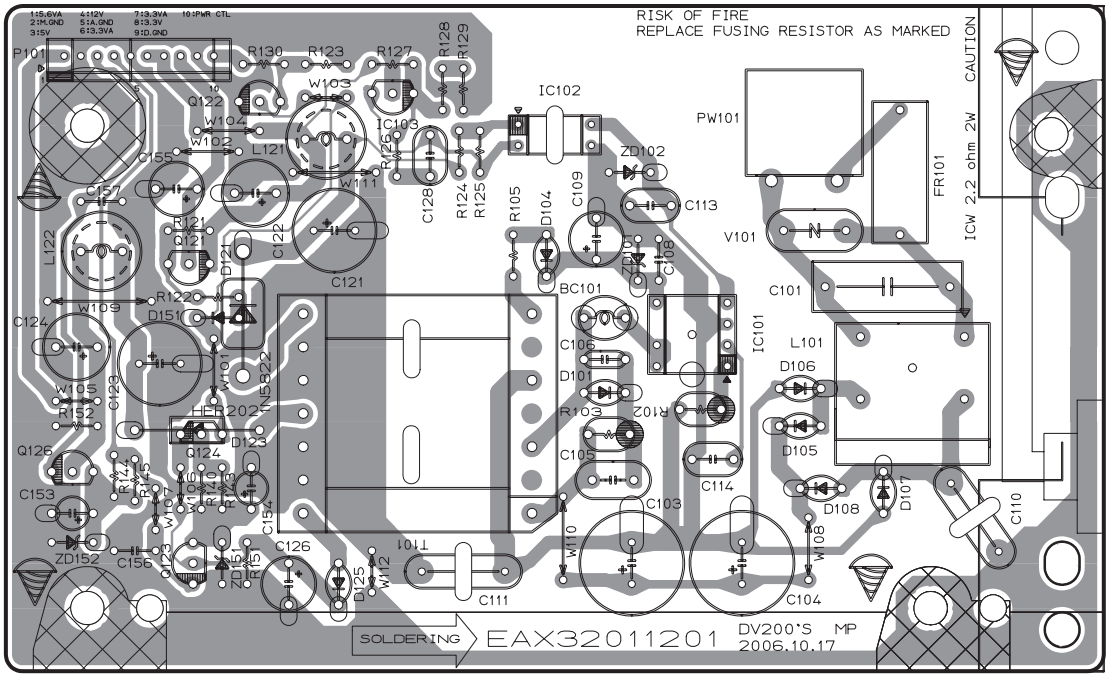
E F G H



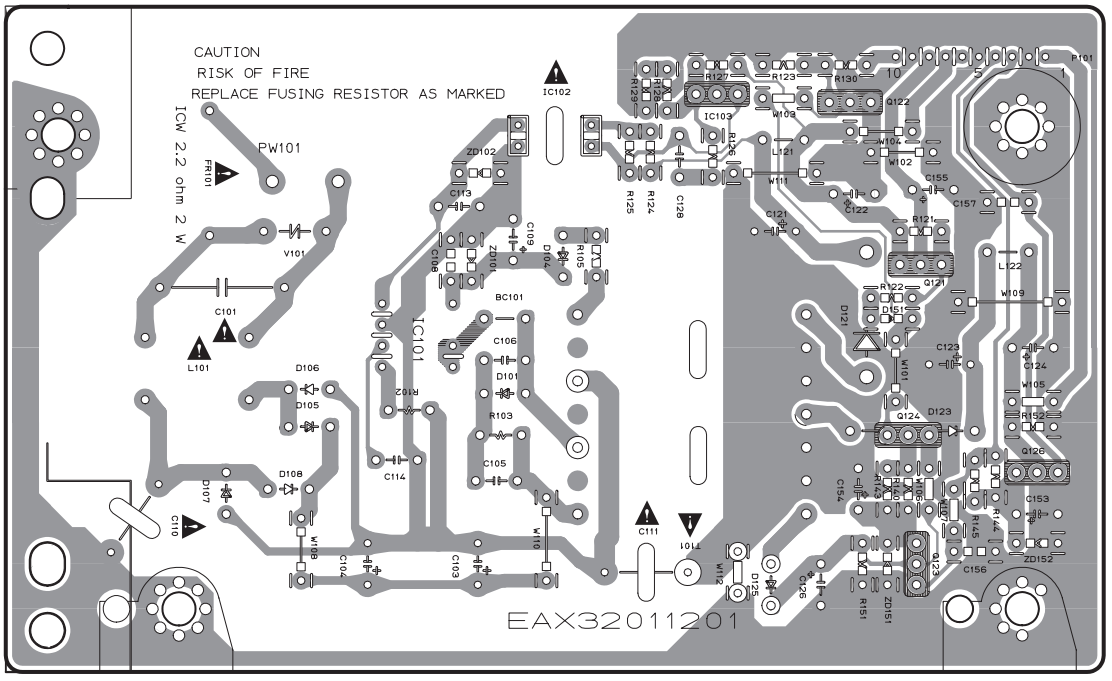
(BOTTOM VIEW)

PRINTED CIRCUIT BOARD DIAGRAMS-2
POWER (SMPS) P.C.BOARD

NOTE) ⚠ Warning
Parts that are shaded are critical with respect to risk of fire or electrical shock.



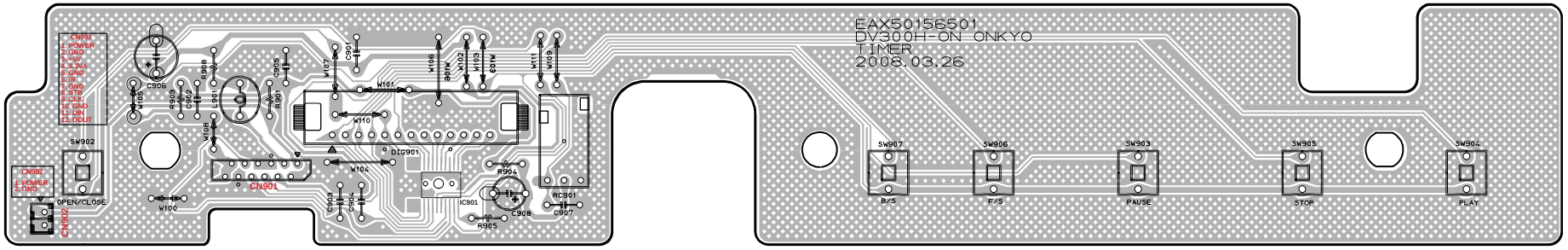
(TOP VIEW)



(BOTTOM VIEW)

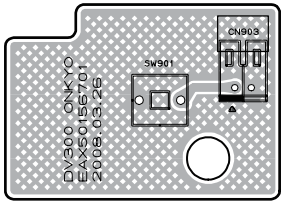
PRINTED CIRCUIT BOARD VIEW-3

KEY BOARD



Component side view

STANDBY/ON SWITCH BOARD

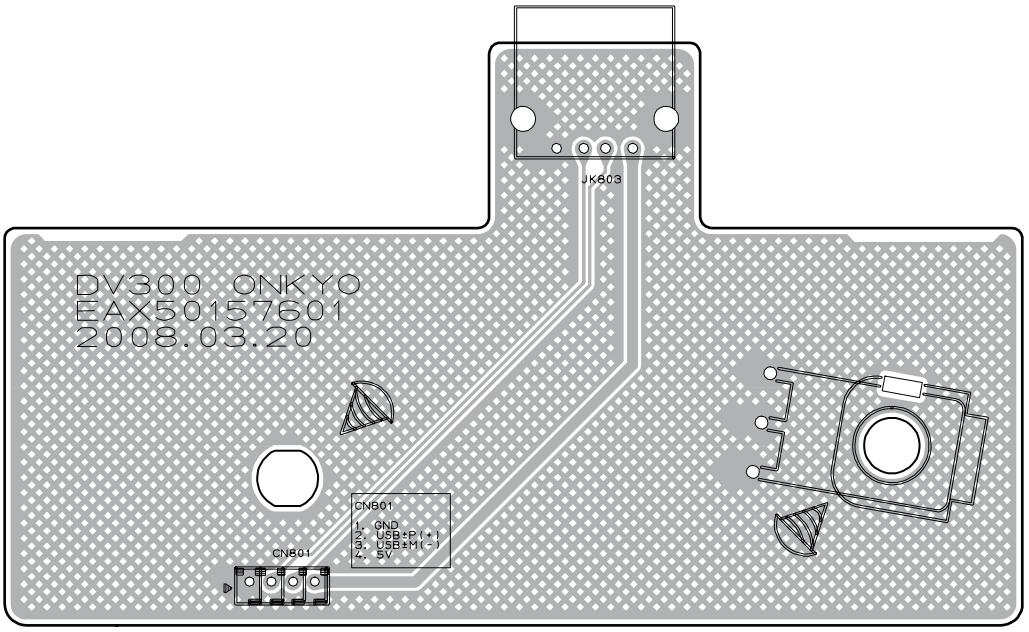


Component side view

PRINTED CIRCUIT BOARD VIEW-4

USB TERMINAL BOARD

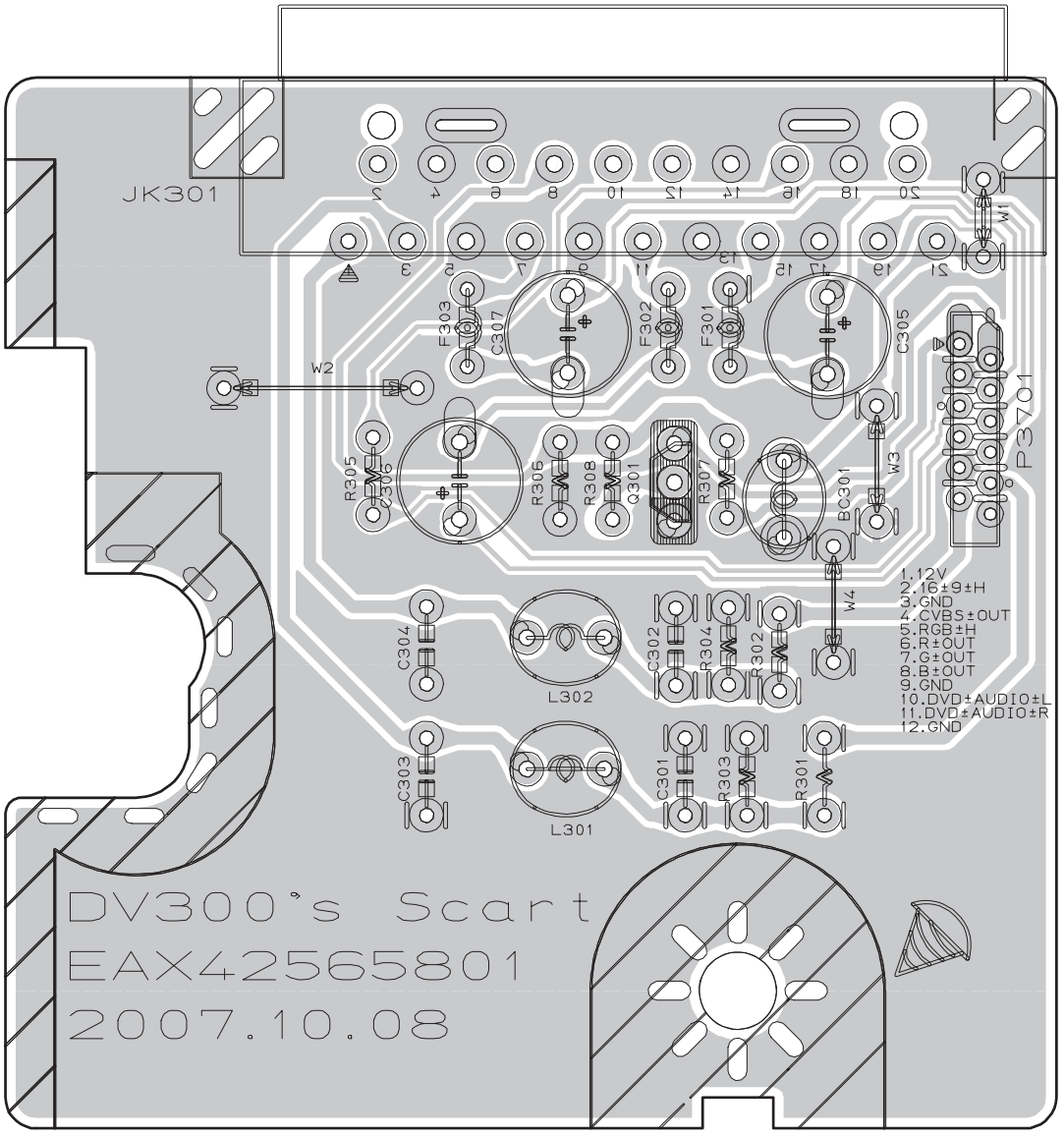
Except U.S.A. model



Component side view

PRINTED CIRCUIT BOARD VIEW-5

SCART TERMINAL PC BOARD EU ONLY

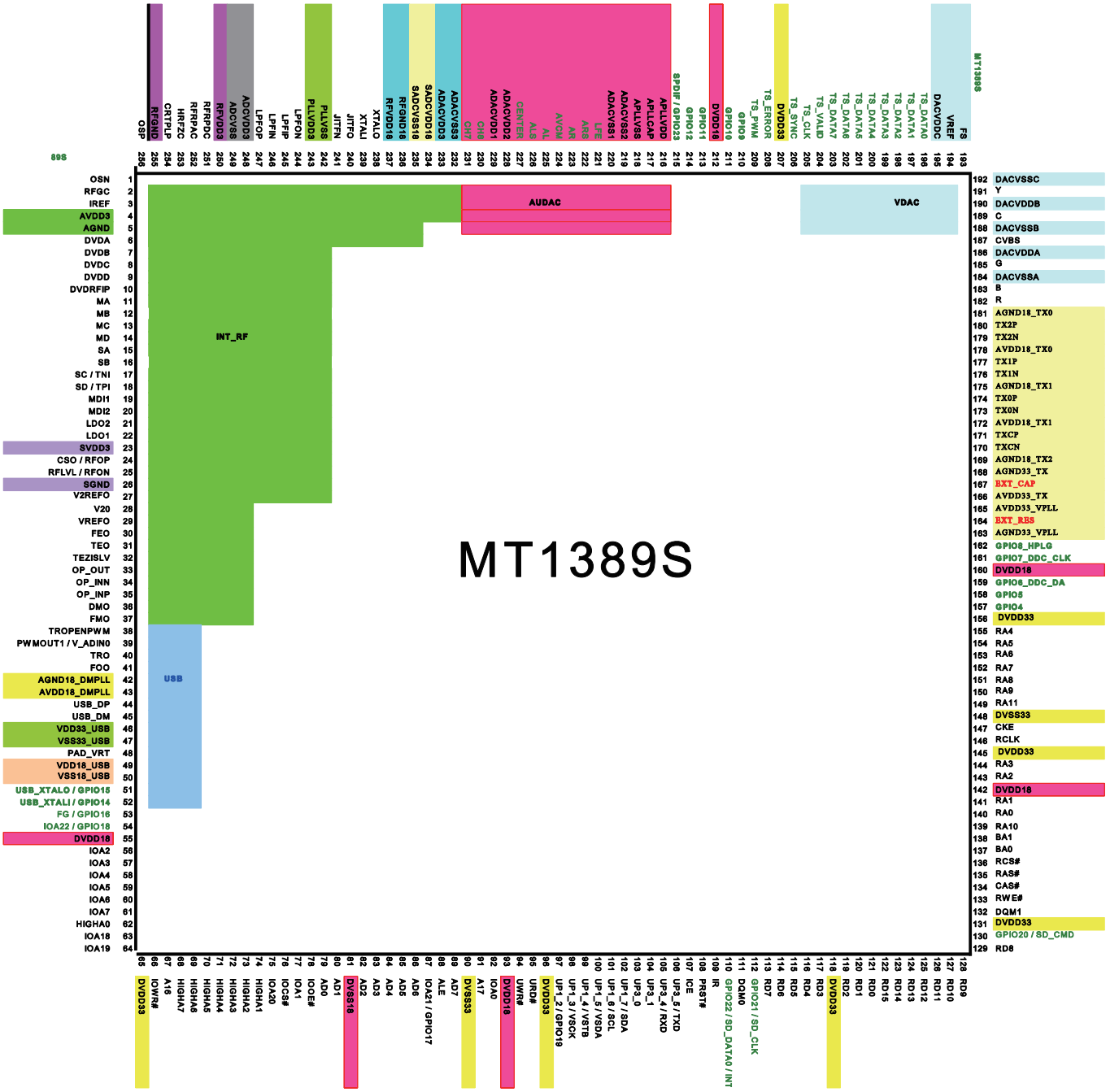


Component side view

IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-1

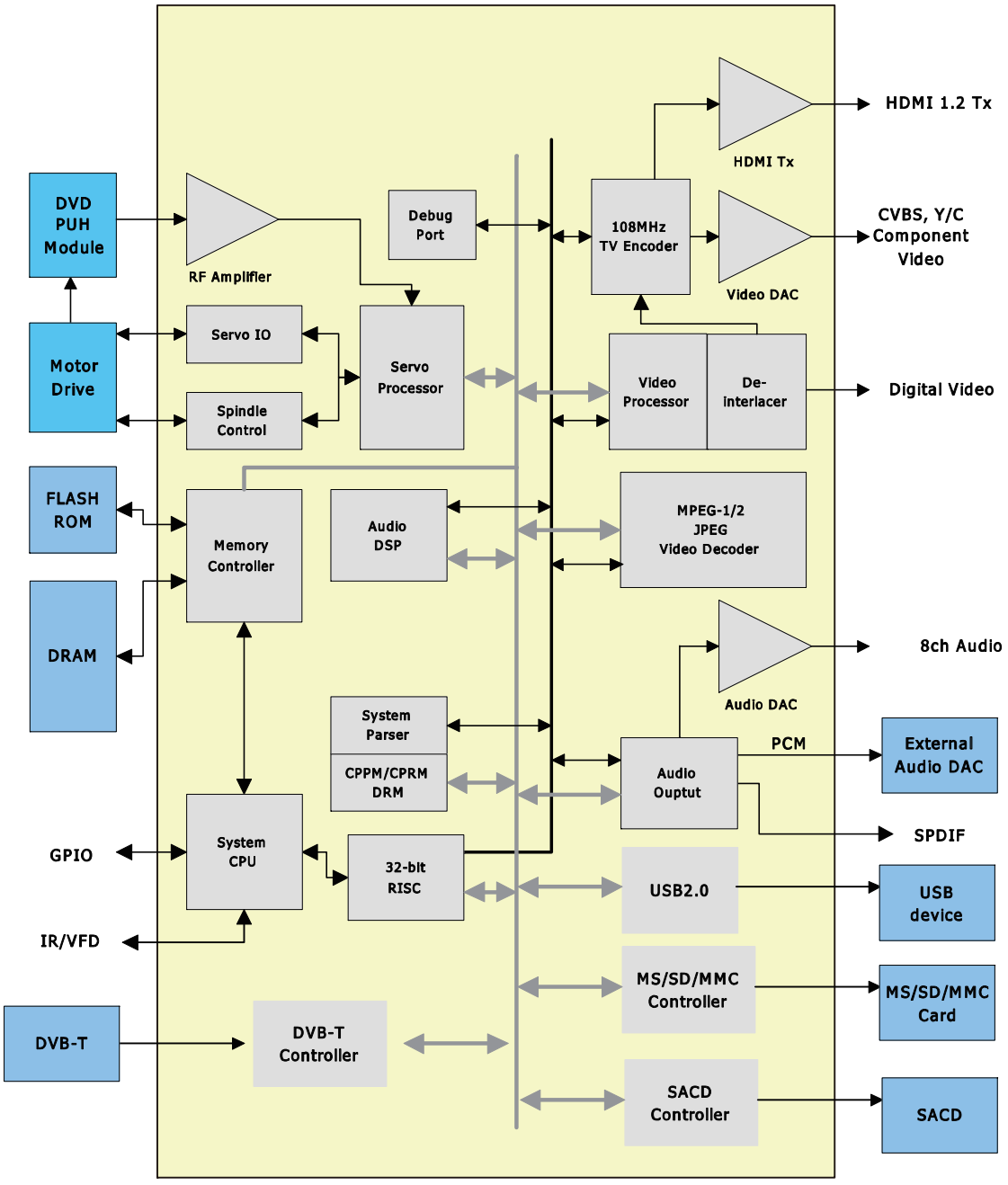
PIN ASSIGNMENT



IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-2

BLOCK DIAGRAM



IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-3

PIN DESCRIPTION

Pin Definitions

Abbreviations:

- SR: Slew Rate
- PU: Pull Up
- PD: Pull Down
- SMT: Schmitt Trigger
- XmA~YmA: Output buffer driving strength from XmA to YmA

Pin	Main	Alt.	Type	Description
RF Interface (21)				
236	RFGND18		Ground	Analog ground
237	RFVDD18		Power	Analog power 1.8V
256	OSP		Analog output	RF Offset cancellation capacitor connecting
1	OSN		Analog output	RF Offset cancellation capacitor connecting
2	RFGC		Analog output	RF AGC loop capacitor connecting for DVD-ROM
3	IREF		Analog Input	Current reference input. It generates reference current for RF path. Connect an external 15K resistor to this pin and AVSS.
4	AVDD3		Power	Analog power 3.3V
5	AGND		Ground	Analog ground
6	DVDA		Analog Input	AC coupled input path A
7	DVDB		Analog Input	AC coupled input path B
8	DVDC		Analog Input	AC coupled input path C
9	DVDD		Analog Input	AC coupled input path D
10	DVDRFIP		Analog Input	AC coupled DVD RF signal input RFIP
11	MA		Analog Input	DC coupled main-beam RF signal input A
12	MB		Analog Input	DC coupled main-beam RF signal input B
13	MC		Analog Input	DC coupled main-beam RF signal input C
14	MD		Analog Input	DC coupled main-beam RF signal input D
15	SA		Analog Input	DC coupled sub-beam RF signal input A
16	SB		Analog Input	DC coupled sub-beam RF signal input B

IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-4

PIN DESCRIPTION

Pin	Main	Alt.	Type	Description
17	SC	TNI	Analog Input	1) DC coupled sub-beam RF signal input C 2) 3 beam satellite PD signal negative input
18	SD	TPI	Analog Input	1) DC coupled sub-beam RF signal input D 2) 3 beam satellite PD signal positive input
ALPC (4)				
19	MDI1		Analog Input	Laser power monitor input
20	MDI2		Analog Input	Laser power monitor input
21	LDO2		Analog Output	Laser driver output
22	LDO1		Analog Output	Laser driver output
ADC Power (2)				
248	ADCVDD3		Power	Analog 3.3V Power for ADC
249	ADCVSS		Ground	Analog ground for ADC
Reference Voltage (3)				
27	V2REFO		Analog output	Reference voltage 2.8V
28	V20		Analog output	Reference voltage 2.0V
29	VREFO		Analog output	Reference voltage 1.4V
SACD ADC Power (2)				
234	SADCVDD18		Analog output	SACD ADC Power 1.8V
235	SADCVSS18		Analog output	SACD ADC Ground
Analog Monitor Output (7)				
23	SVDD3		Power	Analog power 3.3V
24	CSO	RFOP	Analog output	1) Central servo 2) Positive main beam summing output
25	RFLVL	RFON	Analog output	1) RFRP low pass, or 2) Negative main beam summing output
26	SGND		Ground	Analog ground
30	FEO		Analog output	Focus error monitor output

IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-5

PIN DESCRIPTION

Pin	Main	Alt.	Type	Description
31	TEO		Analog output	Tracking error monitor output
32	TEZISLV		Analog output	TE Slicing Level
Analog Servo Interface (6)				
250	RFVDD3		Power	Analog Power
251	RFRPDC		Analog output	RF ripple detect output
252	RFRPAC		Analog Input	RF ripple detect input(through AC-coupling)
253	HRFZC		Analog Input	High frequency RF ripple zero crossing
254	CRTPLP		Analog output	Defect level filter capacitor connecting
255	RFGND		Ground	Analog Power
RF Data PLL Interface (8)				
240	JITFO		Analog output	The output terminal of RF jitter meter.
241	JITFN		Analog Input	The input terminal of RF jitter meter.
242	PLLVSS		Ground	Ground pin for data PLL and related analog circuitry.
243	PLLVDD3		Power	Power pin for data PLL and related analog circuitry.
244	LPFON		Analog Output	The negative output of loop filter amplifier
245	LPFIP		Analog Input	The positive input terminal of loop filter amplifier.
246	LPFIN		Analog Input	The negative input terminal of loop filter amplifier.
247	LPFOP		Analog Output	The positive output of loop filter amplifier
Motor and Actuator Driver Interface (10)				
33	OP_OUT		Analog output	Op amp output.
34	OP_INN		Analog input	Op amp negative input
35	OP_INP		Analog input	Op amp positive input
36	DMO		Analog Output	Disk motor control output. PWM output.
37	FMO		Analog Output	Feed motor control. PWM output.
38	TROPENPWM		Analog Output	Tray PWM output / Tray open output.
39	PWMOUT1	ADIN	Analog Output	1) 1st General PWM output, or 2) ADIN

IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-6

PIN DESCRIPTION

Pin	Main	Alt.	Type	Description
40	TRO		Analog Output	Tracking servo output. PDM output of tracking servo compensator.
41	FOO		Analog Output	Focus servo output. PDM output of focus servo compensator
53	FG (Diogital pin)		Inout 2~8MA, SR PU	1) Motor Hall sensor input 2) GPIO16
General Power/Ground (22)				
55,93, 142,160, 212	DVDD18		Power	1.8V power pin for internal digital circuitry
81	DVSS18		Ground	1.8V Ground pin for internal digital circuitry
65,96,118, 131,145,156, 207	DVDD3		Power	3.3V power pin for internal digital circuitry
90, 148	DVSS33		Ground	3.3V Ground pin for internal digital circuitry
Micro Controller and Flash Interface (47)				
62	HIGHA0		Inout 4~16MA, SR PU	Microcontroller address 8
74	HIGHA1		Inout 4~16MA, SR PU	Microcontroller address 9
73	HIGHA2		Inout 4~16MA, SR PU	Microcontroller address 10
72	HIGHA3		Inout 4~16MA, SR PU	Microcontroller address 11
71	HIGHA4		Inout 4~16MA, SR PU	Microcontroller address 12
70	HIGHA5		Inout 4~16MA, SR PU	Microcontroller address 13
69	HIGHA6		Inout 4~16MA, SR PU	Microcontroller address 14
68	HIGHA7		Inout 4~16MA, SR PU	Microcontroller address 15

IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-7

PIN DESCRIPTION

Pin	Main	Alt.	Type	Description
89	AD7		Inout 4~16MA, SR PU	Microcontroller address/data 7
86	AD6		Inout 4~16MA, SR PU	Microcontroller address/data 6
85	AD5		Inout 4~16MA, SR PU	Microcontroller address/data 5
84	AD4		Inout 4~16MA, SR PU	Microcontroller address/data 4
83	AD3		Inout 4~16MA, SR PU	Microcontroller address/data 3
82	AD2		Inout 4~16MA, SR PU	Microcontroller address/data 2
80	AD1		Inout 4~16MA, SR PU	Microcontroller address/data 1
79	AD0		Inout 4~16MA, SR PU	Microcontroller address/data 0
92	IOA0		Inout 4~16MA, SR PU	Microcontroller address 0 / IO
77	IOA1		Inout 4~16MA, SR PU	Microcontroller address 1 / IO
56	IOA2		Inout 4~16MA, SR PU	Microcontroller address 2 / IO
57	IOA3		Inout 4~16MA, SR PU	Microcontroller address 3 / IO
58	IOA4		Inout 4~16MA, SR PU	Microcontroller address 4 / IO
59	IOA5		Inout 4~16MA, SR PU	Microcontroller address 5 / IO
60	IOA6		Inout 4~16MA, SR PU	Microcontroller address 6 / IO

IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-8

PIN DESCRIPTION

Pin	Main	Alt.	Type	Description
61	IOA7		Inout 4~16MA, SR PU	Microcontroller address 7 / IO
67	A16		Inout 4~16MA, SR PU	Flash address 16
91	A17		Inout 4~16MA, SR PU	Flash address 17
63	IOA18		Inout 4~16MA, SR PU	Flash address 18 / IO
64	IOA19		Inout 4~16MA, SR PU	Flash address 19 / IO
75	IOA20		Inout 4~16MA, SR PU	Flash address 20 / IO
87	IOA21		Inout 2~8MA, SR SMT	1) Flash address 21 / IO 2) While External FLASH size <= 4MBytes(32 Mbits) 3) GPIO
54	IOA22		Inout 2~8MA, SR SMT	1) Flash address 22 / IO 2) While External FLASH size <= 8MBytes(64 Mbits): 3) GPIO
88	ALE		Inout 4~16MA, SR PU	Microcontroller address latch enable
78	IOOE#		Inout 4~16MA, SR PU	Flash output enable, active low / IO
66	IOWR#		Inout 4~16MA, SR PU	Flash write enable, active low / IO
76	IOCS#		Inout 4~16MA, SR PU	Flash chip select, active low / IO
94	UWR#		Inout 4~16MA, SR PU	Microcontroller write strobe, active low
95	URD#		Inout 4~16MA, SR PU	Microcontroller read strobe, active low
97	UP1_2		Inout 2~8MA, SR SMT	Microcontroller port 1-2

IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-9

PIN DESCRIPTION

Pin	Main	Alt.	Type	Description
98	UP1_3		Inout 2~8MA, SR SMT	Microcontroller port 1-3
99	UP1_4		Inout 2~8MA, SR SMT	Microcontroller port 1-4
100	UP1_5		Inout 2~8MA, SR SMT	Microcontroller port 1-5
101	UP1_6	SCL	Inout 2~8MA, SR SMT	1) Microcontroller port 1-6 2) I^2C clock pin
102	UP1_7	SDA	Inout 2~8MA, SR SMT	1) Microcontroller port 1-7 2) I^2C data pin
103	UP3_0	RXD	Inout 2~8MA, SR SMT	1) Microcontroller port 3-0 2) 8032 RS232 RXD
104	UP3_1	TXD	Inout 2~8MA, SR SMT	1) Microcontroller port 3-1 2) 8032 RS232 TXD
105	UP3_4	RXD SCL	Inout 2~8MA, SR SMT	1) Microcontroller port 3-4 2) Hardwired RD232 RXD 3) I^2C clock pin
106	UP3_5	TXD SDA	Inout 2~8MA, SR SMT	1) Microcontroller port 3-5 2) Hardwired RD232 TXD 3) I^2C data pin
GPIO interface (9)				
157	GPIO4		Inout 2~8MA, SR PD, SMT	1) GPIO4
158	GPIO5		Inout 2~8MA, SR PD, SMT	1) GPIO5
159	GPIO6	DDC_DA	Inout 2~8MA, SR PD, SMT	1) GPIO6 2) DDC Data Pin
161	GPIO7	DDC_CLK	Inout 2~8MA, SR PD, SMT	1) GPIO7 2) DDC CLK Pin
162	GPIO8	HPLG	Inout 2~8MA, SR PD, SMT	1) HPLG detection 2) GPIO8

IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-10

PIN DESCRIPTION

Pin	Main	Alt.	Type	Description
210	GPIO9	YUVCLK	Inout 2~8MA, SR PD, SMT	1) GPIO9 2) YUVCLK
211	GPIO10		Inout 2~8MA, SR PD, SMT	1) GPIO10
213	GPIO11		Inout 2~8MA, SR PD, SMT	1) GPIO11
214	GPIO12		Inout 2~8MA, SR PD, SMT	1) GPIO12
Audio interface (19)				
215	SPDIF	GPIO23	Inout 2~8MA, SR : ON/OFF Non-pull	1) SPDIF output 2) GPIO
216	APLLVDD3		Power	3.3V Power pin for audio clock circuitry
217	APLLCAP		Analog Inout	APLL External Capacitance connection
218	APLLVSS		Ground	Ground pin for audio clock circuitry
219	ADACVSS2		Ground	Ground pin for AUDIO DAC circuitry
220	ADACVSS1		Ground	Ground pin for AUDIO DAC circuitry
221	ARF	GPIO	Output	1) AUDIO DAC Sub-woofer channel output 2) While internal AUDIO DAC not used: GPIO
222	ARS	GPIO	Output	1) AUDIO DAC Right Surround channel output 2) While internal AUDIO DAC not used: a. GPIO
223	AR	GPIO	Analog output/ Digital GPIO	1) AUDIO DAC Right channel output 2) While internal AUDIO DAC not used: a. GPIO0
224	AVCM		Analog	AUDIO DAC reference voltage
225	AL	GPIO	Analog output/ Digital GPIO	1) AUDIO DAC Left Surround channel output 2) While internal AUDIO DAC not used: a. GPIO1
226	ALS	GPIO	Output	1) AUDIO DAC Left Surround channel output 2) While internal AUDIO DAC not used: a. GPIO
227	ALF	GPIO	Output	1) AUDIO DAC Center channel output 2) While internal AUDIO DAC not used: a. GPIO
228	ADACVDD2		Power	3.3V power pin for AUDIO DAC circuitry

IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-11

PIN DESCRIPTION

Pin	Main	Alt.	Type	Description
229	ADACVDD1		Power	3.3V power pin for AUDIO DAC circuitry
230	CH8	GPIO	Analog output/ Digital GPIO	3) AUDIO DAC 8th channel output 4) While internal AUDIO DAC not used: a. GPIO
231	CH7	GPIO	Output	3) AUDIO DAC 7th channel output 4) While internal AUDIO DAC not used: a. GPIO
232	ADACVSS3		Ground	Ground pin for AUDIO DAC circuitry
233	ADACVDD3		Power	3.3V power pin for AUDIO DAC circuitry
Video Interface (14)				
195	DACVDDC		Power	3.3V power pin for VIDEO DAC circuitry
194	VREF		Analog	Bandgap reference voltage
193	FS		Analog	Full scale adjustment (suggest to use 560 ohm)
192	DACVSSC		Ground	Ground pin for VIDEO DAC circuitry
191	Y		Analog	Analog Y output
190	DACVDDB		Power	3.3V power pin for VIDEO DAC circuitry
189	C		Analog	Analog C output
188	DACVSSB		Ground	Ground pin for VIDEO DAC circuitry
187	CVBS		Analog	Analog CVBS output
186	DACVDDA		Power	3.3V power pin for VIDEO DAC circuitry
185	G	Y/G	Analog	Green or Y
184	DACVSSA		Ground	Ground pin for VIDEO DAC circuitry
183	B	B/Cb/Pb	Analog	Blue or CB
182	R	R/Cr/Pr	Analog	Red or CR
TS & Flash Card Reader GPIO (16)				
209	TS_PWM	GPIO	Inout 2~8MA, SR PD, SMT	1) Digital Video output Y bit 0 (CCIR656) 2) GPIO
208	TS_ERROR	GPIO	Inout 2~8MA, SR PD, SMT	1) Digital Video output Y bit 1 (CCIR656) 2) GPIO
206	TS_SYNC	GPIO	Inout 2~8MA, SR PD, SMT	1) Digital Video output Y bit 2 (CCIR656) 2) GPIO

IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-12

PIN DESCRIPTION

Pin	Main	Alt.	Type	Description
205	TS_CLK	GPIO	Inout 2~8MA, SR PD, SMT	1) Digital Video output Y bit 3 (CCIR656) 2) GPIO
204	TS_VALID	SD_D3	Inout 2~8MA, SR PD, SMT	1) SD DATA3(IO) 2) Digital Video output Y bit 4 (CCIR656) 3) GPIO
203	TS_DATA7	SD_D2	Inout 2~8MA, SR PD, SMT	1) SD DATA2(IO) 2) Digital Video output Y bit 5 (CCIR656) 3) GPIO
202	TS_DATA6	SD_D1	Inout 2~8MA, SR PD, SMT	1) SD DATA1(IO) 2) Digital Video output Y bit 6 (CCIR656) 3) GPIO
201	TS_DATA5	MS_D3	Inout 2~8MA, SR PD, SMT	1) MS DATA3 (IO) 2) Digital Video output Y bit 7 (CCIR656) 3) HSYNC or VSYNC 4) GPIO
200	TS_DATA4	MS_D2	Inout 2~8MA, SR PD, SMT	1) MS DATA2(IO) 2) Digital Video output C bit 0 (CCIR656) 3) HSYNC or VSYNC 4) GPIO
199	TS_DATA3	MS_D1	Inout 2~8MA, SR PD, SMT	1) MS DATA1 (IO) 2) Digital Video output C bit 1 (CCIR656) 3) GPIO
198	TS_DATA2	MS_CLK	Inout 2~8MA, SR PD, SMT	1) MS CLK 2) Digital Video output C bit 2 (CCIR656) 3) GPIO
197	TS_DATA1	MS_BS	Inout 2~8MA, SR PD, SMT	1) MS BS 2) Digital Video output C bit 3 (CCIR656) 3) GPIO
196	TS_DATA0	MS_D0	Inout 2~8MA, SR PD, SMT	1) MS DATA0 (IO) 2) Digital Video output C bit 4 (CCIR656) 3) GPIO
130	SD_CMD	C_5	Inout 2~8MA, SR PD, SMT	1) MS CLK 2) Digital Video output C bit 5 3) GPIO20
112	SD_CLK	C_6	Inout 2~8MA, SR PD, SMT	1) MS BS 2) Digital Video output C bit 6 3) GPIO21
110	SD_D0	C_7	Inout 2~8MA, SR PD, SMT	1) MS DATA0(IO) 2) Digital Video output C bit 7 3) GPIO22 4) INT0#
USB2.0 (9)				
44	USB_DP		Analog Inout	USB port DPLUS analog pin

IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-13

PIN DESCRIPTION

Pin	Main	Alt.	Type	Description
45	USB_DM		Analog Inout	USB port DMINUS analog pin
46	VDD33_USB		USB Power	USB Power pin 3.3V
47	VSS33_USB		USB Ground	USB ground pin
48	PAD_VRT		Analog Inout	USB generating reference current
49	VDD18_USB		USB Power	USB Power pin 1.8V
50	VSS18_USB		USB Ground	USB ground pin
51	USB_XTALO	GPIO	Analog Output INOUT	30M crystal out for USB 2.0
52	USB_XTALI	GPIO	Analog Input INOUT	30M crystal in for USB 2.0
HDMI TX (19)				
181	AGND18_TX0		Analog Power	1.8V GND FOR HDMI TX
180	TX2P		Analog Output	Postive TX CH2
179	TX2N		Analog Output	Negative TX CH2
178	AVDD18_TX0		Analog Power	1.8V VDD FOR HDMI TX
177	TX1P		Analog Output	Postive TX CH1
176	TX1N		Analog Output	Negative TX CH1
175	AGND18_TX1		Analog Power	1.8V GND FOR HDMI TX
174	TX0P		Analog Output	Postive TX CH0
173	TX0N		Analog Output	Negative TX CH0
172	AVDD18_TX1		Analog Power	1.8V VDD FOR HDMI TX
171	TXCP		Analog Output	Postive TX CLK
170	TXCN		Analog Output	Negative TX CLK
169	AGND18_TX2		Analog Power	1.8V GND FOR HDMI TX
168	AGND33_TX		Analog Power	3.3V GND FOR HDMI TX
167	EXT_CAP		Analog Input	EXTERNAL CAPACITOR FOR HDMI TX
166	AVDD33_TX		Analog Power	3.3V VDD FOR HDMI TX
165	AVDD33_VPLL		Analog Power	3.3V VDD FOR HDMI TX
164	EXT_RES		Analog Input	EXTERNAL RESISTER FOR HDMI TX
163	AGND33_VPLL		Analog Power	3.3V GND FOR HDMI TX

IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-14

PIN DESCRIPTION

Pin	Main	Alt.	Type	Description
MISC (7)				
107	ICE		Input PD, SMT	Microcontroller ICE mode enable
109	IR		Input SMT	IR control signal input
238	XTALO		Output	27M crystal out
239	XTALI		Input	27M crystal in
42	AGND18_DMPLL		Analog Ground	Analog ground for DMPLL
43	AVDD18_DMPLL		Analog Power	Analog power pin 1.8V for DMPLL
Dram Interface (38)				
155	RA4		Inout	DRAM address 4
154	RA5		Inout	DRAM address 5
153	RA6		Inout	DRAM address 6
152	RA7		Inout	DRAM address 7
151	RA8		Inout	DRAM address 8
150	RA9		Inout	DRAM address 9
149	RA11		Inout Pull-Down	DRAM address bit 11
147	CKE		output	DRAM clock enable
146	RCLK		Inout	Dram clock
144	RA3		Inout	DRAM address 3
143	RA2		Inout	DRAM address 2
141	RA1		Inout	DRAM address 1
140	RA0		Inout	DRAM address 0
139	RA10		Inout	DRAM address 10
138	BA1		Inout	DRAM bank address 1
137	BA0		Inout	DRAM bank address 0
136	RCS#		output	DRAM chip select, active low
135	RAS#		output	DRAM row address strobe, active low
134	CAS#		output	DRAM column address strobe, active low

IC BLOCK DIAGRAM/ TERMINAL DESCRIPTION

IC601 DVD IC MT1389S-15

PIN DESCRIPTION

Pin	Main	Alt.	Type	Description
133	RWE#		output	DRAM Write enable, active low
132	DQM1		Inout	Data mask 1
129	RD8		Inout	DRAM data 8
128	RD9		Inout	DRAM data 9
127	RD10		Inout	DRAM data 10
126	RD11		Inout	DRAM data 11
125	RD12		Inout	DRAM data 12
124	RD13		Inout	DRAM data 13
123	RD14		Inout	DRAM data 14
122	RD15		Inout	DRAM data 15
121	RD0		Inout	DRAM data 0
120	RD1		Inout	DRAM data 1
119	RD2		Inout	DRAM data 2
117	RD3		Inout	DRAM data 3
116	RD4		Inout	DRAM data 4
115	RD5		Inout	DRAM data 5
114	RD6		Inout	DRAM data 6
113	RD7		Inout	DRAM data 7
111	DQM0		Inout	Data mask 0

Note:

1. The Main column is the main function, Alt. Means alternative function.

SERVICE PROCEDURES-1

PRODUCT SAFETY SERVICING GUIDELINES FOR DVD PRODUCTS

IMPORTANT SAFETY NOTICE

This manual was prepared for use only by properly trained audio-video service technicians.

When servicing this product, under no circumstances should the original design be modified or altered without permission from LG Corporation. All components should be replaced only with types identical to those in the original circuit and their physical location, wiring and lead dress must conform to original layout upon completion of repairs.

Special components are also used to prevent x-radiation, shock and fire hazard.

These components are indicated by the letter "x" included in their component designators and are required to maintain safe performance. No deviations are allowed without prior approval by LG Corporation.

Circuit diagrams may occasionally differ from the actual circuit used. This way, implementation of the latest safety and performance improvement changes into the set are not delayed until the new service literature is printed.

CAUTION: Do not attempt to modify this product in any way. Never perform customized installations without manufacturer's approval. Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury.

Service work should be performed only after you are thoroughly familiar with these safety checks and servicing guidelines.

GRAPHIC SYMBOLS

The exclamation point within an equilateral triangle is intended to alert the service personnel to important safety information in the service literature.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the service personnel to the presence of noninsulated "dangerous voltage" that may be of sufficient magnitude to constitute a risk of electric shock.

The pictorial representation of a fuse and its rating within an equilateral triangle is intended to convey to the service personnel the following fuse replacement caution notice:

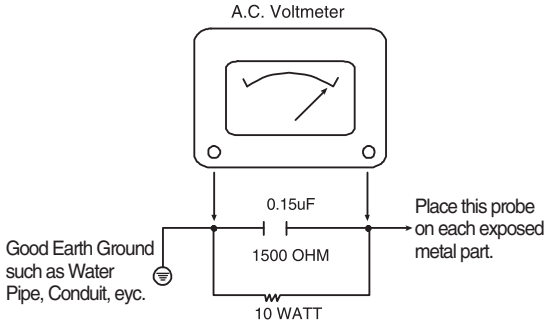
CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

SERVICE INFORMATION

While servicing, use an isolation transformer for protection from AC line shock. After the original service problem has been corrected, make a check of the following:

FIRE AND SHOCK HAZARD

1. Be sure that all components are positioned to avoid a possibility of adjacent component shorts. This is especially important on items trans-ported to and from the repair shop.
2. Verify that all protective devices such as insulators, barriers, covers, shields, strain reliefs, power supply cords, and other hardware have been reinstalled per the original design. Be sure that the safety purpose of the polarized line plug has not been defeated.
3. Soldering must be inspected to discover possible cold solder joints, solder splashes, or sharp solder points. Be certain to remove all loose foreign particles.
4. Check for physical evidence of damage or deterioration to parts and components, for frayed leads or damaged insulation (including the AC cord), and replace if necessary.
5. No lead or component should touch a high current device or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.
6. After reassembly of the set, always perform an AC leakage test on all exposed metallic parts of the cabinet (the channel selector knobs, antenna terminals, handle and screws) to be sure that set is safe to operate without danger of electrical shock. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST. Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm, 10 watt resistor, paralleled by a .15 mfd 150V AC type capacitor between a known good earth ground water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and .15 mfd capacitor. Reverse the AC plug by using a non-polarized adaptor and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts RMS. This corresponds to 0.5 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



TIPS ON PROPER INSTALLATION

1. Never install any receiver in a closed-in recess, cubbyhole, or closely fitting shelf space over, or close to, a heat duct, or in the path of heated air flow.
2. Avoid conditions of high humidity such as: outdoor patio installations where dew is a factor, near steam radiators where steam leakage is a factor, etc.
3. Avoid placement where draperies may obstruct venting. The customer should also avoid the use of decorative scarves or other coverings that might obstruct ventilation.
4. Wall- and shelf-mounted installations using a commercial mounting kit must follow the factory-approved mounting instructions. A product mounted to a shelf or platform must retain its original feet (or the equivalent thickness in spacers) to provide adequate air flow across the bottom. Bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage tests on customized installations.
5. Caution customers against mounting a product on a sloping shelf or in a tilted position, unless the receiver is properly secured.
6. A product on a roll-about cart should be stable in its mounting to the cart. Caution the customer on the hazards of trying to roll a cart with small casters across thresholds or deep pile carpets.
7. Caution customers against using extension cords. Explain that a forest of extensions, sprouting from a single outlet, can lead to disastrous consequences to home and family.

SERVICE PROCEDURE-2

SERVICING PRECAUTIONS

CAUTION: Before servicing the DVD covered by this service data and its supplements and addends, read and follow the SAFETY PRECAUTIONS. NOTE: if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publication, always follow the safety precautions.
Remember Safety First :

General Servicing Precautions

1. Always unplug the DVD AC power cord from the AC power source before:
   (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
   (2) Disconnecting or reconnecting any internal electrical plug or other electrical connection.
   (3) Connecting a test substitute in parallel with an electrolytic capacitor.
   Caution: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Do not spray chemicals on or near this DVD or any of its assemblies.

3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cotton-tipped swab, or comparable soft applicator.
   Unless specified otherwise in this service data, lubrication of contacts is not required.

4. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.

5. Do not apply AC power to this DVD and / or any of its electrical assemblies unless all solid state device heat sinks are correctly installed.

6. Always connect the test instrument ground lead to an appropriate ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter (500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1Mohm.
Note 1: Accessible Conductive Parts include Metal panels, Input terminals, Earphone jacks,etc.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor chip components.
The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.

4. Use only an anti-static solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ES devices.

5. Do not use freon-propelled chemicals. These can generate an electrical charge sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).

7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Normally harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

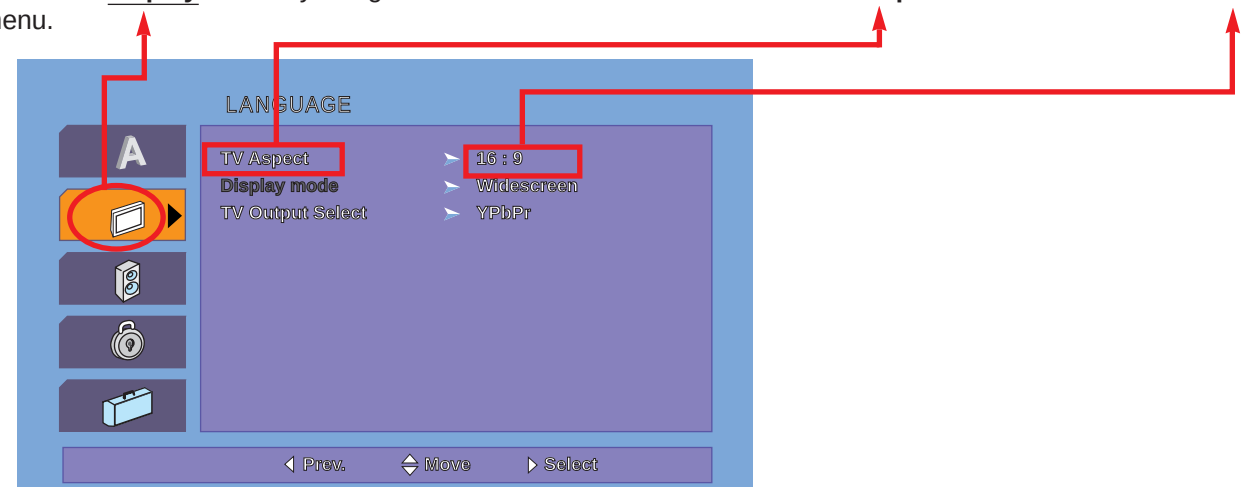
THE PROCESS OF DISC DOWNLOAD-1

Please follow the below process to download a program with disc

1. Turn on the DVD-player.
   (Note. Be sure that there is no disc in DVD-player)

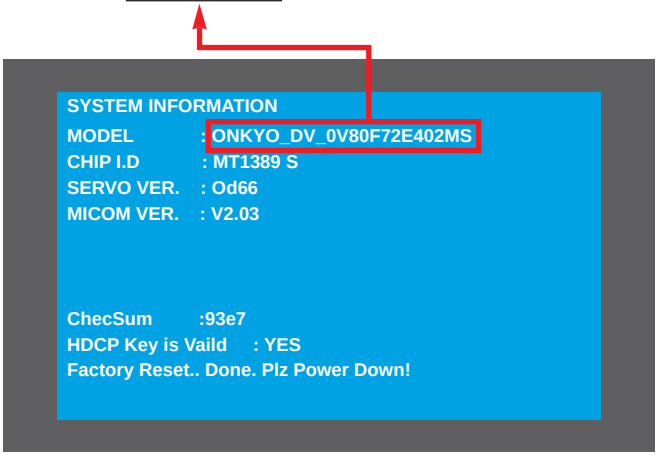
2. Press “SETUP” button on Remote control.

3. Choose a “**display**” menu by using the cursor button and then choose a “**TV Aspect**” menu. And choose “**16:9**” menu.



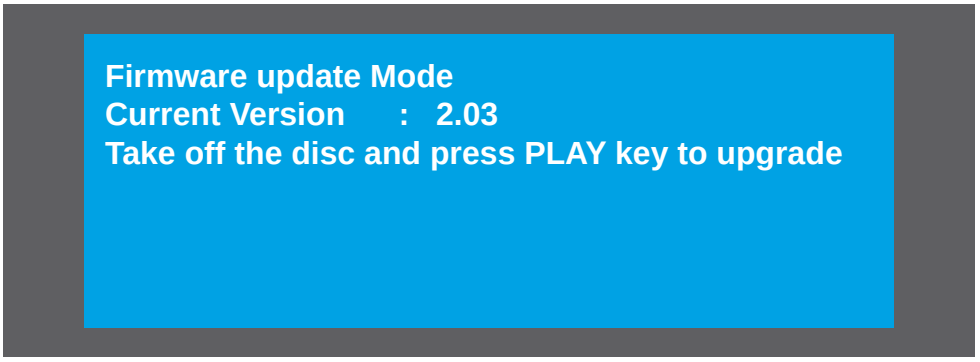
4. Press the **1** --> **3** --> **9** --> **7** --> **1** --> **3** --> **9** (numerical button) --> Enter key on remote control to confirm the system information.

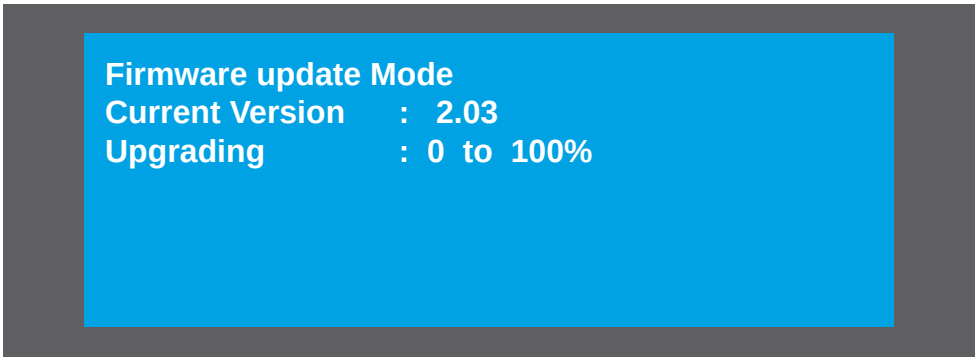
5. Remember or write the **model name**.


SYSTEM INFORMATION
MODEL : ONKYO_DV_0V80F72E402MS
CHIP I.D : MT1389 S
SERVO VER. : Od66
MICOM VER. : V2.03
ChecSum :93e7
HDCP Key is Vaild : YES
Factory Reset.. Done. Plz Power Down!

THE PROCESS OF DISC DOWNLOAD-2

6. Copy the changed file to a disc. (see page 3)
7. Insert the copied disc to DVD-player.
8. If the below picture appears on the screen.
9. After the below picture appears on the screen, Disc will emerge from DVD-player automatically. Take the disc out of the DVD-player.

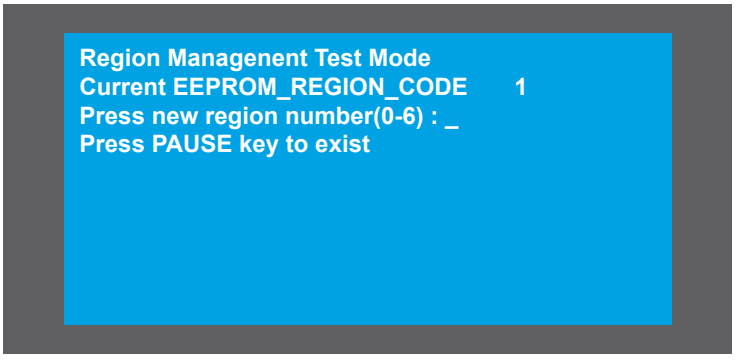




10. After Disc download is completed, DVD-player turns off and then turns on automatically.
11. Do it again the process 1, 2, 3, 4 to confirm the **version.**

THE PROCESS OF DISC DOWNLOAD-3

1. Make the folder named RMTM0000.
2. Make the folder of the name of SCArLet into RMTM0000 folder.
3. Make the Firmware data in the SCArLet folder.
4. CD-R is made. (Writing new FW)
5. Setting the CD-R on the tray.



TV monitor

6. When the region code is changed, the figure from 0 to 6 is input by remote controller. And PAUSE key is pushed.
7. Push the OPEN/CLOSE key, and pull out the CD-R.
8. Push STANDBY/ON key. After about 2 second, pull out a AC cord.

(The TV monitor screen becomes TOP menu display, and LCD display is disappear.)

PARTS LIST

DV-SP406

NSP: Not service part
<S>: Silver color
<B>: Black color
U.S. : North American
AUS : Australia
EU : Europe

MECHANICAL SECTION

DV-SP406

DESTINATION	LOCA.NO	PART NO	DESCRIPTION	SPECIFICATION	REMARKS
	010	EAD34861101	Cable,FFC	AT10023270D01 270MM 1.00MM 23P WHITE AWM 2896 EUN SUNG INDUSTRIAL CO.,LTD.	
	016	EBR34880104	PCB Assembly	DP-12 FEEDING/LOADING -430mm	
	026	MJS31956302	Tray	MOLD ABS XR-401 DVD dp-12 MOLD MD	
	A26	EAZ38311314	Deck Assembly,DVD	DECK/MECHA DP-12V player (IN) IM Sled -430mm	

CABINET & MAIN FRAME SECTION

DV-SP406

ASSEMBLY PARTS SECTION

DESTINATION	LOCA.NO	PART NO	DESCRIPTION	SPECIFICATION	REMARKS
<S>	250	MBN42944901	Case, Top cover	PRESS PCM 0.525 DV300_ONKYO PRESS TOP CASE	
<B>	250	MBN42944902	Case, Top cover	PRESS PCM 0.525 DV300_ONKYO PRESS TOP CASE	
	260		Chassis	PRESS SECC 0.6 DV30-ON(ONKYO) PRESS MAIN(430mm)_WITH HDMI	NSP
	261	MCQ32325001	Damper	CUTTING RUBBER DVD 07 DVD PLAYER OTHER FOOT(13*13*2t)	
	261A	MDP42944201	Foot	MOLD ABS HF-380 DVD DV300_ONKYO MOLD FRONT_FOOT_DECO	
	261B	MDP42944501	Foot	MOLD ABS HF-380 DVD DV300_ONKYO MOLD REAR_FOOT_DECO	
	262	MAZ32047801	Bracket	PRESS SECC 1.0 DVD DV290 PRESS FRONT	
EU, AUS only	275		Plate,Ground	PRESS STS 301 0.2mm MDD102 USB GROUND	NSP
EU, AUS only	276		Holder	MOLD HIPS 60HR DVD DV300 MOLD KARAOKE	NSP
<S> U.S.	280		Panel Assembly,Front	DVD DV300H-ON ONKYO	NSP
<B> U.S.	280		Panel Assembly,Front	DVD DV300-ON ONKYO	NSP
<B> AUS	280		Panel Assembly,Front	DVD DV300H-ON ONKYO	NSP
<B> EU	280		Panel Assembly,Front	DVD DV300H-ON ONKYO	NSP
<S> EU	280		Panel Assembly,Front	DVD DV302H-OE ONKYO	NSP
<S> AUS	280		Panel Assembly,Front	DVD DV302H-OE ONKYO	NSP
	283	MJS42943101	Tray	MOLD ABS TR558 DVD DV300_ONKYO MOLD DOOR_TRAY	
<S> U.S.	300	6410RAHP03A	Power Cord	HIT-110/NI SPT-2X18AWG HIT UL/CSA 1800MM GP390 PVC TYBE 95MM BLACK	
<B> U.S.	300	6410RAHP01A	Power Cord Assembly	SPT-2/18AWG/BLK/NM/1.8M/BLK A122 GP390-3S-CS 1.8M 120MM 125V 15A SPT-2 2XAWG18 BLACK UL CSA N HARNESSINDO TUNGGAL / HIT , PT	
AUS	300	6410RKHV03A	Power Cord Assembly	AU10S3+H03VVH2-F 2X0.75MM2 NM to PS PVC LEAD FREE/1.8M/BLK (with tube) AU10S2 GP390-3S-CS 1.8M 95MM 250V 10A H03VVH2-F 2X0.75MM2 BLACK SAA N VOLEX (ASIA) PTE LTD.	
EU	300	6410RCHP04A	Power Cord Assembly	HIT-101/H03VVH2-F/2X0.75MM2/70℃/BK/GP-390-3S HIT-101 GP-390-3S-CS 1.8M 95MM 250V 2.5A H03VVH2-F 2X0.75MM2 BLACK CEU N HIT ELECTRONICS INDONESIA PT	
U.S.	320	MGC42944701	Panel,Rear	PRESS SECC 0.6 DVD DV300_ONKYO PRESS REAR_PANEL	
AUS	320	MGC42944703	Panel,Rear	PRESS SECC 0.6 DVD DV300H_ON(ONKYO_ASIA) PRESS REAR_PANEL	
EU	320	MGC42944702	Panel,Rear	PRESS SECC 0.6 DVD DV300H_ON(ONKYO_EUROPE) PRESS REAR_PANEL	
	452		Screw,Customized	1SZZR-0098A BH + 3MM 10MM MSWR FZY SIN JIN BOLT IND CO.	NSP
<S>	460	1SZZR-0098G	Screw,Customized	1SZZR-0098G FH + 3MM 8MM MSWR FZW SIN JIN BOLT IND CO.	
<B>	460	1SZZR-0098H	Screw,Customized	- + 3MM 8MM MSWR FZW SIN JIN BOLT IND CO.	
EU, AUS only	461	1SZZR-0098L	Screw,Customized	- + 3MM 16MM MSWR NI PLT SIN JIN BOLT IND CO.	
	462		Screw,Customized	1SZZ0098J BH + 3MM 6.5MM MSWR FZY SIN JIN BOLT IND CO.	NSP
EU, AUS only	463		Screw,Customized	1SZZR-0098G FH + 3MM 8MM MSWR FZW SIN JIN BOLT IND CO.	NSP
	465		Screw,Customized	1SZZR-0097K BH + 3MM 10MM MSWR FZB SIN JIN BOLT IND CO.	NSP
	467		Screw,Customized	- + 3MM 8MM MSWR FZB SIN JIN BOLT IND CO.	NSP
	470		Screw,Customized	BZN BK (CR +3) SPECIAL + 3MM 6MM SWRCH FZB	NSP
EU, AUS only	A41	EBR50545802	PCB Assembly	DV300 ONKYO USB _	
<S> U.S.	A43	AAX59311403	Board Assembly	DVD DV300H-ON ONKYO	

<B> U.S.	A43	AAX59311401	Board Assembly	DVD DV302H-OE ONKYO	
EU, AUS only	A43	AAX59311404	Board Assembly	DVD DV302H-OE ONKYO	
EU, AUS only	A43	AAX59311402	Board Assembly	DVD DV300H-ON ONKYO	
U.S.	A44	ADV59279101	Frame Assembly	DVD DV300H-ON(ONKYO) -	
AUS	A44	ADV59279103	Frame Assembly	DVD DV300H-ON(ONKYO) -	
EU	A44	ADV59279102	Frame Assembly	DVD DV300H-ON(ONKYO) -	
U.S.	A47	EBR42200722	PCB Assembly,Power	DV300'S SMPS IN Narrow Total Ass'y	
EU, AUS only	A47	EBR42200721	PCB Assembly,Power	DV300'S SMPS IN WIDE Total Ass'y	
EU only	A48	EBR42778911	PCB Assembly	DV300'S Scart PCB ASSY IN .	
	A50	EBR50460302	PCB Assembly	08 DVD-P ONKYO TIMER IN	

PACKING SECTION

DV-SP406

DESTINATION	LOCA.NO	PART NO	DESCRIPTION	SPECIFICATION	REMARKS
U.S.	801	AFN52750428	Manual Assembly,Owners	DVD DV300H-ON.BUSAOOK/S ASS'Y	
AUS	801	AFN52750430	Manual Assembly,Owners	DVD DV300H-OP.BAUSOOK/S ASS'Y	
EU	801	AFN52750429	Manual Assembly,Owners	DVD DV302H-OE.BDEUOOK/S ASS'Y	
	802	MAY46749483	Box,Master	BOX SW3 515 119 293 2 COLOR DV302H-OP BAUSOOS SWW3-A ONKYO	
	803	MFZ47272603	Packing	CUTTING EPS DVD DV300_ONKYO 45 .	
	804		Bag,Vinyl	CUTTING HDPE 430 500 0.5 DVD9000	**NSP**
	806	6850R-PAA2E	Cable,Assembly	RCA PLUG RCA PLUG 1.2M 1P BLACK PVC AWG26X1C+S N SE IL ELECTRONICS	
	808		Dry Cell Battery	AAA(R03) 1PAIR 1.5V 50MAH AAA STC CORPORATION	**NSP**
U.S.	810	6851R-0081B	Accessory Assembly	VCR LGEIN 1WAY YELLOW 1.8M +2WAY RED_WHITE 1.8M HIT_HY_SEIL_DT FREE OF HAZARDOS	
EU, AUS only	810	6851R-0074B	Accessory Assembly	VCR LGEIN 1WAY YELLOW 1.2M + 2WAY R/W 1.2M FREE OF CD_PB_HG HY_HIT_DT_SEIL	
U.S.	811	6850R-PAA8F	Cable,Assembly	HAV-10001-01 RCA PLUG(3.2) RCA PLUG(3.2) 1.8M 1P BLACK PVC AWG26X1C+S N HYO SUNG ELECT.CO.,LTD	
EU, AUS only	811	6850R-PAA2F	Cable,Assembly	RCA PLUG RCA PLUG 1.2M 1P YELLOW PVC AWG26X1C+S N SE IL ELECTRONICS	
U.S.	812	6850R-PBA8H	Cable,Assembly	HAV-10004-01 RCA PLUG(3.2) RCA PLUG(3.2) 1.8M 2P BLACK PVC AWG26X1C+SX2P N HYO SUNG ELECT.CO.,LTD	
EU, AUS only	812	6850R-PBA2H	Cable,Assembly	RCA PLUG RCA PLUG 1.2M 2P RED/WHITE PVC AWG26X1C+S N SE IL ELECTRONICS	
	900	AKB57498901	Remote Controller Assembly	U2 DV3 ONKYO BLACK	
U.S.	A46	EBR42880773	Option Code Assembly	DV300H-ON.BUSAOOK . .	
AUS	A46	EBR42880775	Option Code Assembly	DV302H-OP.BAUSOOK . .	
EU	A46	EBR42880774	Option Code Assembly	DV302H-OE.BDEUOOK . .	

ELECTRICAL SECTION

DV-SP406

DESTINATION	LOCA.NO	PART NO	DESCRIPTION	SPECIFICATION	REMARKS
	CABLE1	EAD42078701	Cable,FFC	AT10012180D02 180MM 1.00MM 12P WHITE UL2896 (DV398) EUN SUNG INDUSTRIAL CO.,LTD.	
EU only	CABLE2	EAD35665101	Cable,FFC	AT10012060C03 60MM 1.00MM 12P WHITE UL 2896 DV286K-EM EUN SUNG INDUSTRIAL CO.,LTD.	
	CN201	6630XE00123	Connector,FFC/FPC/PIC	04-6232-023-010-000 23P 1.00MM FFC/FPC STRAIGHT TOP SMD TP NON_LOCKING - KYOCERA ELCO	
	CN202	6630XE00109	Connector,FFC/FPC/PIC	04-6232-009-010-000 9P 1.00MM FFC/FPC STRAIGHT TOP SMD TP NON_LOCKING - KYOCERA ELCO	
	CN601	6630R-FB10L	Connector,FFC/FPC/PIC	00-6232-012-006-800 12P 1.00MM FFC/FPC STRAIGHT TOP SMD TP NON_LOCKING - KYOCERA ELCO	
	CN602	561-711J	Connector,Wafer	GIL-S-10P-S2T2-EF 10P 2.00MM 1R STRAIGHT DIP ST LIGHT BROWN - LS CABLE	
EU, AUS only	CN611	561-711D	Connector,Wafer	GIL-S-04P-S2T2-EF 4P 2.00MM 1R STRAIGHT DIP ST LIGHT BROWN -	
EU only	CN705	6630XE00112	Connector,FFC/FPC/PIC	JE500-B1.0-T12 12P 1.00MM FFC STRAIGHT TOP SMD TP NON_LOCKING - JAE EUN ELECTRONIC CO., LTD	
EU, AUS only	CN801	EAD42070202	Harness,Single	4P-70MM SHIELD (DV398) GIL-S 9073-ST 70MM 2.00MM 4P UL1061 AWG26 N SHIELD HYUN SEUNG ELECTRONICS (TAI CHANG) CO.LTD.	
	CN901	6630R-FB10L	Connector,FFC/FPC/PIC	00-6232-012-006-800 12P 1.00MM FFC/FPC STRAIGHT TOP SMD TP NON_LOCKING - KYOCERA ELCO	
	CN902	EAD36507207	Harness,Single	2P-150MM (DV200) TJC19-02Y/GIL-S-02 SANW-02Y 150MM 2.00MM 2P AWG24 (BLUE,GRAY) N - HIT ELECTRO MECHANICS INDONESIA PT	

	CN903	561-712B	Connector,Wafer	GIL-S-02P-S2L2-EF 2P 2.00MM 1R ANGLE DIP ST LIGHT BROWN -
	D104, D125	0DR104009BA	Diode,Rectifier	RL104F 400V 1.3V 5UA 30A 150NSEC A405 TP 2P 1 RECTRON CO. LTD
	D105, D106, D107, D108	0DRRE00203A	Diode,Rectifier	1A7 600V 1.1V 5UA 25A - R1 TP 2P 1 RECTRON CO. LTD
	D121	0DR158220AA	Diode,Schottky	1N5822 950MV 40V 3A 1NSEC 250pF 1.1W DO201 TP 2P 1 RECTRON CO. LTD
	D123	0DR202000AB	Diode,Rectifier	HER202 100V 1V 5UA 60A 50NSEC DO15 TP 2P 1 RECTRON CO. LTD
	DIG901	6301R2U017Q	LED Assembly	GYXS-2511CG LED CLOCK BRIGHT LED UNIVERSAL 8m GUO JIAN (QING DAO) JIN SU ZHI PIN CO.,LTD
	FR101	0RM0221K634	Resistor,Cement	ICW02M22R20J 2.2OHM 5% 2W 27X10X9.5MM 5MM RADIAL BK SMART ELECTRONICS INC.
	IC101	EAN34789801	IC,PWM Controller	STR-A6259H 12.9V TO 15.7V 10V 1.35W DIP ST 8P SANKEN ELECTRIC CO.,LTD.
	IC102	6500RDB011B	Sensor,Position	K1010B 5V DIP BK 4P 4PIN PHOTOCOUPLER COSMO CORPORATION
	IC103	0IPMGUC004B	IC,LDO Voltage Regulator	TL431 MAX12V 3.3V 600MW TO92 TP 3P UNISONIC TECHNOLOGIES CO., LTD
EU only	JK301	6612M00003B	Jack,Scart	RGB-16B 21P 21P/1C 3.81MM ANGLE DIP TR - ZHEJIANG YUQIU ELECTRONIC CO.,LTD
	JK701	6612K00003D	Jack,Fiber Optic	JST1164 3P TX 2.54MM ANGLE 13.2MBPS DIP ST BRASS 7V - JST MANUFACTURING CO., LTD.
U.S., AUS only	JK702	EAG40564001	Jack,Complex	RCA/DIN-709A-00-01. 16P RCA/DIN, BK/RE/WH/YL, DIN/GN/BL/RD 15MM ANGLE DIP TR BK/RE/WH/YL, DIN/GN/BL/RD ZHEJIANG YUQIU ELECTRONIC CO.,LTD
EU only	JK702	EAG41396501	Jack,RCA	RCA-707A-00-01 15.0MM 2RX4C ANGLE TR BK/RD/WH/YL, None/GN/BL/RD ZHEJIANG YUQIU ELECTRONIC CO.,LTD
	JK705	EAG40562101	Connector,DSUB	HMR24-AK5210 HDMI 19P 1.5MM ANGLE FEMALE DIP TR NON_LOCKING - ADVANCED - CONNECTEK,INC.
EU, AUS only	JK803	EAG35130502	Connector,USB	U250FD004S113BY A 1P 2.00/2.50MM ANGLE DIP TR 2P Normal Type YUQIU MACHINERY & ELECTRONIC
	P101	6631R-E078Q	Harness,Single	GIL-S10/9073 10ST 60mm GIL-S-10 9073-10 ST 60mm 2.00MM 10P UL1061 AWG26 N . DONGJI ELECTRONICS
EU only	P3701	6630R-FB10L	Connector,FFC/FPC/PIC	00-6232-012-006-800 12P 1.00MM FFC/FPC STRAIGHT TOP SMD TP NON_LOCKING - KYOCERA ELCO
	PW101	6630V90108A	Connector,Wafer	JE202-2L-03 2P 3.96MM 1R ANGLE DIP ST WHITE - JAE EUN ELECTRONIC CO., LTD
	Q121	0TR127109AA	TR,Bipolar	KTA1271Y PNP -5V -35V -30V -0.8A -0.0000001A 160TO320 625MW TO92 TP 3P KEC CORPERATION
	Q123	0TR320309AA	TR,Bipolar	KTC3203 NPN 5V 35V 30V 800MA 100NA 100TO320 625MW TO92 TP 3P KEC CORPERATION
	Q126	0TR320509AB	Transistor Assembly	KTC3205-Y(KTC2236A) KTC3205-Y(KTC2236A) TP KEC TO92L NPN KEC CORPERATION

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